TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

THE ENSONIQ EPS PERFORMANCE SAMPLER

Ensoniq Corp.

The new Ensoniq EPS Performance Sampler asks that you put aside many of your ideas about sampling keyboards. The whole idea behind the EPS was to make the best sampler for live performance - a hostile environment for even the heartiest of samplers.

Other samplers make you stand in front of a dead keyboard for up to a minute while the disk drive spins your sound into memory. The Ensoniq EPS is the only sampling keyboard with Performance Loading, a feature that lets you go on playing while your sounds load from diskette.

The EPS gives you a level of performance expression that approaches acoustic instruments. For instance, sax players can add a growl or a squeak as the spirit moves them. Until now, keyboard players could only wiggle a couple of wheels and hope for the best.

The EPS is the first keyboard to give you this acoustic advantage in an electronic instrument. The two "Patch Select" buttons give you instant access to four alternate sound patches of your choice. So now you can add that growl and squeal at the appropriate moment in your sax solo - as the spirit moves you.

In addition, there's the Ensoniq Poly-Key (tm) pressure sensitive keyboard that lets each individual key respond to how hard you strike it and how hard you hold it down. So you can make a single note in a chord play louder, brighter, with more vibrato or any of a dozen other effects.

There's much more to the EPS, like the multi-timbral versatility of 20 dynamically-assigned voices (stack all 20 on one key if you like), 8-track polyphonic sequencer, full support of all MIDI modes and programmable stereo panning.

If you're into sampling, you'll be interested to find sampling rates of up to 52 kHz, "expert system" looping, 6-stage envelopes, 20 Hz-20 kHz bandwidth, 96 db dynamic range and the ability to have 127 distinct samples in each of the 8 instruments on the keyboard at one time.

EPS SPECIFICATIONS

KEYBOARD

61 note (C-C) weighted-action keyboard with programmable velocity sensitivity and Poly-Key (tm) pressure (polyphonic aftertouch)

Performance Loading - play and load at the same time - all keyboard functions remain active during disk load

Up to eight "Instruments" instantly available

Stack any two or more Instruments together with the push of a button

Easily change the keyboard range of any instrument or wavesample

In This Issue...

MIRAGE:

The Performance Mirage
Duane King.....9

Ensoniq Sound Disk C-3
Erick Hailstone.....11

Looping Using Visual Editors, Part II
Walter Daniel.....16

ESQ-1/ SQ-80:

The SQ-80
Clark, Jim, & Erick.....6

Sound Hound Review
Rick Hall.....14

Softworx Review
Chris Barth.....18

Amplitude Modulation
Jim Johnson.....20

Hackerpatch
Hailstone, Mims, & Contributors.....24

EPS:

EPS Introduction
Ensoniq Corp......Cover

GENERAL:

Random Notes.....4

Hypersoniq.....4

Poly-Key Pressure
Ensoniq Corp......13

Classifieds.....26

The Interface.....29

CONTROLLERS

Exclusive Patch Select Buttons for instant access to four different sounds within each instrument

Pitch and Mod Wheels

Sustain and Sequencer Foot Switches

Mod/Volume Pedal

INTERNAL MEMORY

480k Bytes Internal RAM

3 Memory expansions available:

2x expander: 896k Bytes
4x expander: 2.1 Megabytes
4x+SCSI expander: 2.1 Megabytes plus SCSI port

SAMPLING

Data storage format: 16 bit

Sample converter: 13 bit

40 selectable Input Sample rates from 6.25 kHz to 52.1 kHz

Maximum Sample times:

Internal Memory:

```
41.7 seconds @ 6.25 kHz
 8.6 seconds @ 30.0 kHz
 5.7 seconds @ 44.6 kHz
4.95 seconds @ 52.1 kHz
```

With 2x Memory Expander:

```
83.4 seconds @ 6.25 kHz
17.2 seconds @ 30.0 kHz
11.5 seconds @ 44.6 kHz
 9.9 seconds @ 52.1 kHz
```

With 4x Memory Expander:

```
167. seconds @ 6.25 kHz
34.4 seconds @ 30.0 kHz
22.9 seconds @ 44.6 kHz
19.8 seconds @ 52.1 kHz
```

No minimum or maximum size for Instruments (within the limits of memory)

Easy sampling and multisampling with Expert System Autolooping

Wide variety of Digital Signal Processing commands to edit sampled sounds and create loops and special effects

PLAYBACK

Frequency response: 20 Hz to 20 kHz +0, -3 dB

2x oversampling with 1st order linear interpolation for enhanced frequency response

24 bit internal processing

Floating point output conversion for 96 dB dynamic range

Three playback modes:

20 voices at 31.2 kHz playback rate for 15 kHz frequency response

16 voices at 39 kHz playback rate for 19 kHz frequency response

12 voices at 52 kHz playback rate for 20 kHz frequency response

Linear phase output response for crystal clear high end

Can convert Mirage sounds to EPS format and play them with improved fidelity

INPUTS/OUTPUTS

Left/Mono and Right audio outputs allow programmable stereo mix

Optional Output Expander box for an additional 8 solo outputs

Headphone jack for private listening

Pedal/Control Voltage Input

Audio Input switchable between mic and line level

Sustain Pedal, Sequencer Footswitch

MIDI In, Out, Thru

Optional SCSI Port with 4x+SCSI expander

VOICE ARCHITECTURE

20 voices dynamically assigned

Independent dynamic digital filter per wavesample

Multi-mode digital filters: Q low-pass or variable-width band-pass

Multi-timbral, able to play eight Instruments at once from Sequencer or MIDI

Instant selection of alternate samples with Patch Select buttons or legato playing

Each Instrument can contain up to 127 wavesamples

Complete program parameter set for each wavesample - pitch, filter and amplitude envelopes, LFO, 12 routable modulation sources

Wavesamples are organized into Layers, which map groups of wavesamples across the keyboard. Each Instrument can contain up to eight Layers, which can be crossfaded at any number of points by the keyboard, by pressure, velocity, or any other modulator.

Each wavesample can be individually panned within the stereo mix or sent to one of the eight solo outputs (with optional expander)

SEQUENCER

8 polyphonic tracks, each with separate Instrument, Volume and MIDI channel

Tracks can play internal voices and/or external MIDI instruments

Sequence size limited only by internal memory (80,000 notes for base unit)

Up to 20 voices per track, dynamically assigned

Post-quantization (auto-correct to 1/32 note triplets)

Step editing

Auto-locate controls and adjustable click track

Mixdown facility for balancing individual tracks

Songs and Sequences can be saved to disk

MIDI

Poly, Omni, Multi and Mono A and Mono B modes

8 simultaneous polyphonic MIDI Channels in, with separate Instruments

Instruments can be programmed to play only to MIDI Out, on any channel, allowing up to eight outbound MIDI keyboard zones

Global controllers in mono mode for use with MIDI guitar controllers, etc.

MIDI song position pointers for use with SMPTE auto-locators

MIDI remote programming

DISK

800K double-sided 3.5" floppy

DMA (Direct Memory Access) for Play While Load

Variable-size file storage

Subdirectory organization

Save MIDI System Exclusive dumps from any MIDI device to disk

STANDARD ACCESSORIES

Musician's Manual, detachable power cord, Sustain Footswitch, Sound Disks

OPTIONAL ACCESSORIES

Additional Sound Disks

CV Pedal - for voice modulation or volume control

2-pedal piano-type Footswitch for Sustain and Sequencer control

8-Output Expander box

2x, 4x and 4x+SCSI memory expanders

DIMENSIONS: 38 3/4" (98 cm) wide X 3 1/2" (9 cm) high X 13 1/2" (34 cm) deep

WEIGHT: 29 pounds (13 kilograms)

PRICE: $1995

LIMITED WARRANTY: One year, parts and labor

Prices and specifications subject to change without notice.

Ensoniq, EPS, Mirage, & Poly-Key are trademarks of Ensoniq Corp.

ENSONIQ Corp, 155 Great Valley Parkway, Malvern, PA

Canada: 6969 Trans Canada Hwy., Suite 123, St. Laurent, Que. H4T 1V8

ENSONIQ Europe BV, Domplein 1, 3512 JC Utrecht, Holland

Australia: Electric Factory, 188 Plenty Rd., Preston, Vic 3072

ENSONIQ Japan, Ochanomizu KS Bldg., 2nd Floor #201, 3-3-1 Hongou Bunkyo-Ku, Tokyo

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The widest variety of synthesis techniques available :

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- amplitude modulation
- ring modulation
- nonlinear waveshaping
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Synthesize great sounds on the Macintosh, and send them via MIDI to your Mirage. Try synthesis techniques previously found only on large computer systems. Unlock your creativity.
A two disk set including the Synfonix™ program, sample patches, and an illustrated manual. It's like getting another synthesizer.

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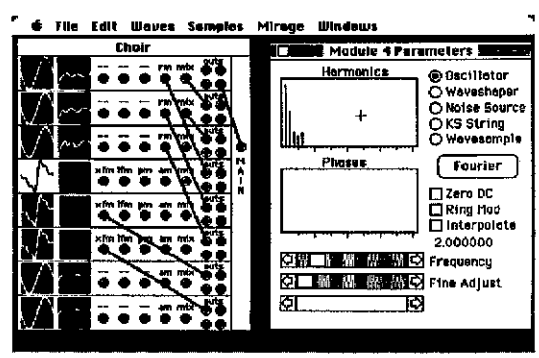
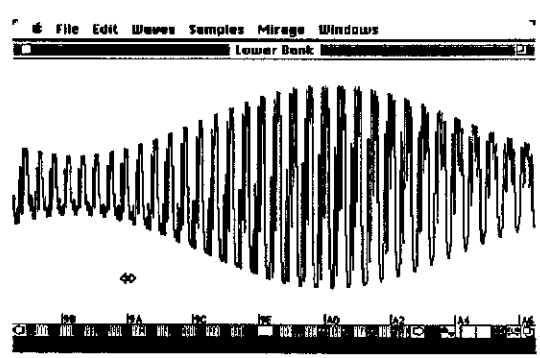


Patch modules like an analog synthesizer.



Generate high quality synthesized sound.

Requires Macintosh 512K, 512KE, Plus, or SE and an external drive or hard disk. Mirage™ is a trade mark of Ensoniq Corp. Sound Designer™ is a trademark of Digidesign, Inc. Macintosh™ is a trademark of Apple Computer, Inc.

RND (♫♪)

As you can see, we managed to get a couple SQ-80's to our reviewers in time for a "first look" to get into this issue. Special thanks to Synthony Music of Scottsdale, AZ, and Portland Music Company of Portland, OR for providing access to these machines, and to Ensoniq for expediting their shipment. Next month, hopefully we can do a similar thing for the EPS (although its shipping date may delay this until the February issue).

* * *

Due to the large amount of overlap between the ESQ-1 and the SQ-80 (programming, features, most third-party and Hackerpatches), we've decided to combine their listings in the Table of Contents. Any exceptions to applicability of any particular article or patch or patch review will be pointed out. Otherwise, assume it's for both.

* * *

Speaking of Hackerpatches, our file's getting a little skimpy. Now would be a REAL GOOD TIME to send in that little gem that you've been keeping to yourself.

* * *

You think that your life's complicated? How would you like to have to send out several thousand change-of-address notices? Yes, after untold decades at the same location, we're moving. After December 12th, 1987, all letters, $$, threats, articles, advertisements, patches, and whatever else you think we might be able to use should be sent to: TRANSONIQ HACKER, 1402 SW Upland Drive, Portland, OR 97221. At the same time, our phone number will change to (503) 227-6848.

* * *

Blank Software is also moving and has asked us to pass on their new address: Blank Software, 1477 Folsom St., San Francisco, CA 94103. Their phone number remains (415) 863-9224.

* * *

Turtle Beach Softworks reports getting a lot of calls from Vision/Mirage users about their new series of visual editors. They'd like us to point out that the new editors are not upgrades to Vision/Mirage, but actually support other samplers. They do, however, plan an upgrade in early 1988 which will add mouse support and the ability to read Digidesign sound files into Vision. Registered users will be notified by mail.

* * *

Hey, how about those EPS specs! Including a standard SCSI interface in one of the optional accessories is especially interesting. This can open up a whole world of high-speed communications with industry standard gear (not just hard disks). The other day we heard rumors about a SCSI-to-DAT interface being debugged...

* * *

We've been mailing sample issues to Ensoniq's "warranty card list." If you end up with an extra copy, please pass it on to a musician friend or a music store.

* * *

TRANSONIQ-NET

The following people have agreed to help with questions:

ESQ-1 QUESTIONS - Tom McCaffrey. ESQUPA. (215) 750-0352, before 11 p.m. Eastern Time.

ESQ-1 QUESTIONS - Jim Johnson, (602) 821-9266. 5 to 10 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.

MIRAGE/ESQ-1 COMPUTER BULLETIN BOARD - Provided by John Connolly of Portland, Oregon for information exchange and file transfer. "Ensoniq-Net": Phone (voice): 503-641-6260. Phone (BBS/computer): 503-646-2095. Free messages. Yearly membership for upload/download: $35.

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

MIDI & SEQUENCING - Leslie Fradkin, Metropolis Music. Eastern Time (NY). Calls between 10 am and 9 pm. (212) 246-8420.

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.

BACK ISSUES

Back issues are $2. each. (Overseas: $3 each.) Issues 1-8, 11, 13-18, 21, and 22 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

STD Productions has announced the release of HIGHPOCKETS, a display and carrying system for 3" disks and cartridges. Features include immediate visual access to 13 disks, storage for over 60 disks, and a self-contained carrying case for 35 disks. Designed especially for keyboardists, HIGHPOCKETS fastens to almost anything and requires no level or horizontal spaces for support. HIGHPOCKETS is made of 100% cotten to reduce the risk of static electricity, machine washable, and fully guaranteed. LIST PRICE: $18.95. For more info: STD Productions, Rt. 13, Box 3, Morgantown, WV, 26505. (304) 296-6755.

* * *

Valhala has announced a ROM customizing service. ESQ-1 owners can send them their own patches - several different formats are accepted, including cassette, Valhala, Music Direct, Blank, and Beaverton librarians for the C-64, and Opcode, Blank, and Beaverton librarians for the Mac - and Valhala will burn them into a ROM. $40 for an 80-voice ROM, $75 for 160 voices, and $139 for a 320-voice ROM. For info: Valhala, Box 20157-TH, Ferndale, MI 48220. (313) 548-9360.

* * *

BUG Alert/New Product Announcement: Leaping Lizards reports that several bugs have been reported in the operation of early versions of THE IGUANA. All known bugs have been eliminated in their latest update - Version 1.3. Version 1.3 also contains a new feature, "Cb" (clear buffer), which erases the memory in THE IGUANA and allows you to restart without having to re-boot. Owners of earlier versions may receive the update FREE OF CHARGE by returning their original disk. Call for info. Leaping Lizards, 10026 36th Ave NE, Seattle, WA 98125. (206) 527-3431.

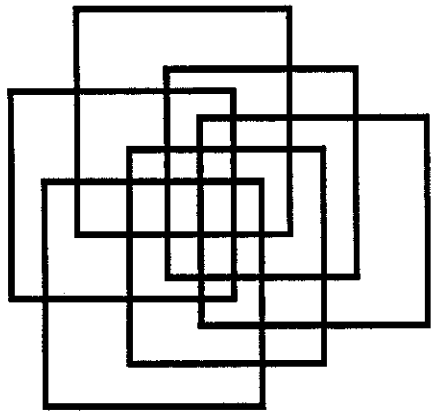
* * *

Musitech annouces a "Mirage Stereo Output Kit," as featured in the June, '87 issue of *Electronic Musician*; based on Ensoniq's own design, and manufactured with their permission and approval. Includes a quality CAD-designed G-series epoxy PC board, all IC's and other components (including resistors for both versions), and hardware. The complete kit is $60.50. The PC board only is $20.50. Prices include postage & handling. For complete info, contact: Musitech, PO Box 3717, Chattanooga, TN 37404.

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!)

Introducing.....



Soundprocess™

Digital Sound Synthesizer
For the Ensoniq Mirage

- Powerful new operating system for your Mirage
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- 32 programs with 6 splits for each program
- Each sound has: 4 independent oscillators
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  1 filter envelope
  2 sine wave LFO's
- 72 user-definable waves and wavesamples
- 11 flexable oscillator configurations
- Full 16 MIDI channel multi-timbral sound control

Soundprocess System Disk and User's Manual $245

Soundprocess DEMO Disk $5

Triton Box 395 Grand Island, New York 14072

Mirage is a trademark of Ensoniq Corp.

THE SQ-80

EARLY IMPRESSIONS BY THREE OLD HACKERS

Clark Salisbury

Few things generate that much excitement in my day-to-day life anymore. A new Peter Weir film, maybe. Or development of a new genetically engineered life-form. But when Ensoniq announces new products, I'm all ears. You see, like most of the rest of us chronically gizmo-oriented music nerds out there, I've come to expect a great deal from Ensoniq. And with good reason; both the Mirage and the ESQ'1 shattered existing price-performance barriers when they were introduced. And for the last six months or so, the rumors of a new digital oscillator chip under development at Ensoniq have kept speculation on new products bubbling away. So when Ensoniq finally announced the introduction of two new products (the SQ-80 and the EPS), I was in a state of near ecstasy.

The new SQ-80 finally arrived. I have to admit that my initial impression of the machine was that it was not quite as mind-boggling an instrument as I had expected; don't get me wrong - it's a great machine. But I'd heard that it was going to be a new 12-bit technology using Ensoniq's recently developed DOC2 chip (it isn't and it doesn't, as near as I can gather), and the first demo sequences I heard reminded me of nothing more than the familiar ESQ'1. [TH - The new chip, which does show up in the EPS, actually has 16-bit storage, 13-bit A/D, and 24-bit internal processing.] However, it is the forsworn duty of the confirmed MIDInerd to delve to the deepest inner levels of new technology as thoroughly and adroitly as possible; so, armed with an owner's manual and a pot of espresso roast, I went to work.

What I found was this: the SQ-80 is primarily a big version of the ESQ'1. Not in size, but in function. It looks almost identical to the ESQ that I've come to know and love. And in operation, it is nearly identical. For those of you who create new sounds for these instruments, you should be pleased to hear that it is practically identical to an ESQ'1 in terms of programming. The major differences are the addition of 43 new waveforms to the standard ESQ arsenal of 32, a new "secondary release" stage that's been added to the envelop generators, and the ability to use key pressure as a modulator (the latter, of course, could be accomplished with the ESQ'1, to an extent, if you were using another keyboard capable of sending channel pressure as a master).

The new waveforms are a combination of sustained sounds, attack transients, and drum samples, primarily. In the sustained sound category have been included a couple of new reed waveforms, a brass waveform, a string waveform (taken from a cello, according to the manual), and a clavinet waveform, all of which are digital samples, looped. There are also a number of new synth waveforms here, most of which tend to sound as if they were taken from popular digital synthesizer sounds. Names like "DIGIT", "GLINT", and "GRIT" tell the story here. There are also a number of "inharmonic loop" sounds - "BREATH", "VOICE 3", "STEAM", "METAL", and "CHIME" are all fairly self-descriptive names. Next is a series of multi-sampled attack transients; these are non-sustaining acoustic instrument attack sounds, such as the scrape of a violin bow as it moves across a string, or the initial pluck of an acoustic guitar string. The idea (which has been so successfully pioneered by Roland in their D-50 L/A synthesizer) is that you can use these attack partials to form the very beginning of a sound (which is where most of the complexity of a sound is found) and then "cross-fade" into one of the sustain waveforms to create the body and decay of a sound. Hence the term "cross-wave" synthesis. But don't let the terminology confuse you - it is the identical format used in the ESQ'1. Only the waveforms have changed.

Also included are a number of drum samples, arranged both singly and in multi-samples across the keyboard. The original press release states that there are "five multi-sampled drumsets" on board. This is not completely accurate. There are actually 5 drum samples on board (apart from the original ESQ'1 KICK). They are "KICK 2", "HI HAT", "SNARE", "TOM", and "LOGDRUM". The five drum kits referred to are actually five different keyboard arrangements of these individual sounds; not quite the five drumkits originally advertised. But since these drum samples reside in the SQ-80 as any other waveform does, they can be combined and processed along with the other waveforms to yield some fairly interesting results.

Another change to the basic ESQ'1 voice is the addition of a "secondary release" stage to the envelope generators. It is not actually another stage in the envelope; the way it works is that if you raise the value of T4 in the envelope past a value of 63, you cross over into the secondary release stage, which also has a range of values from 0 to 63. The owner's manual states that for these values "instead of going to zero, the envelope drops to a low level, after which it fades to zero at a fixed rate. This creates a simulated reverb effect which can enhance a great many types of sounds". However, there appears to be no way to set a value for the normal release function of T4 when you're using the "secondary release" function. (At least I could find no mention of this in the owner's manual.) So I'm not sure exactly how useful this secondary release stage will prove to be.

The other new addition is the Poly-Key keyboard. This is a keyboard that features polyphonic aftertouch as a modulation source. The aftertouch can be used in the same manner as any other modulator in the ESQ. It can control pitch, amplitude, filter cutoff, LFO amount, or any of the other things a normal ESQ modulator could control.

Sequencer and MIDI implementation on the SQ-80 is every bit as rich as that of the ESQ'1; MIDI omni, poly, mono, and multi modes are all implemented, along with the familiar eight-track architecture of the ESQ'1 sequencer. There are a couple of changes here, though. You can have twice the number of sequences and songs as on the ESQ'1 (60 and 20, respectively), and the "change length" function in the sequence edit page has been dropped in favor of a more flexible "add" and "delete" measures function which allows you to either add or delete any number of measures (up to 99) to or from any point within a sequence. Handy.

The disk drive, of course, is brand new. And in typical Ensoniq fashion, accessing its functions is a breeze. Simply press the "storage" button and do what the display tells you to do. Piece of cake. It would have been nice, however, to have a way to load sounds and sequences all at one time, though. As it is, you must first load one type of data, then re-access the drive to load the other. Oh well.

The big question, of course, is how does it sound? Well, if you plug an ESQ'1 cartridge into the port and play its programs, it sounds pretty much like an ESQ. The new waveforms do give you some new possibilities, though. I find myself particularly pleased hearing my favorite ESQ'1 string sounds with real

sampled string attacks. And the guitar attacks can form the basis of some pretty nice electric and acoustic guitar sounds. There are mallet attacks available (which are certain to show up in myriad vibes, marimba and electric piano sounds), and some nice, breathy flute chiff things. I would have liked some brass attack sounds included with the waveforms, but brass has always been a fairly easy sound to synthesize, so I guess it's really no big deal.

All in all, it's quite a machine. It should be. The ESQ'1 is, in my opinion, the finest synthesizer available in its price range. By expanding on the basic format established in that venerable machine, the SQ-80 should do well.

Jim Johnson

If you saw last month's issue of the Hacker, or if you've been keeping your senses tuned to any of the other sources of gossip on Ensoniq's products, you've probably heard a least a little about their newest addition to the ESQ synthesizer family, the SQ-80. Essentially, the SQ-80 is identical to the ESQ-1, except for the internal disk drive, pressure sensitive keyboard, expanded sequencer memory, the 38 new multisampled waveforms, and a few minor changes to the envelopes. This is a refreshing change for me; it means that I can skip the tedious listing of the instrument's features, and concentrate on those aspects of the instrument that differ from the ESQ-1.

The SQ-80's disk drive is everything one would expect from such a device, more or less. The "more" is the sheer amount of data that can be stored on a single disk - ten full sequence or sysex dumps, 40 program banks, and 128 single programs. Single sequences can also be saved and loaded, but each single sequence takes up as much space on the disk as a full sequence dump. The same limitation holds for the single program storage feature, as it's not possible to extract an individual program from within a bank.

The sysex dump feature, which will work with any instrument that allows you to initiate a dump from the front panel, has room enough to store a full dump from just about any synth or drum machine available today, but it's too small for most sample dumps. One point worth noting, which is not unexpected but which will certainly influence the flow of a live performance, is that the sequencer memory is cleared when a system exclusive dump or load is performed. The amount of time needed to load a full 20,000 note sequence dump is under thirty seconds, which is certainly good enough for live use, but you'll have to plan carefully if you need to use all of the SQ-80's disk capabilities in the same set.

The "less" is that, surprisingly, sequences and patches can NOT be loaded and saved as a unit! Not only does this raise the potential for confusion in all situations, it also drastically increases the amount of time needed to load an entire song (consisting of sounds and sequences) in a live performance. Since the SQ-80 is directly aimed at the performing musician, the reasons for such a gaffe on Ensoniq's part are incomprehensible. Another negative, which really falls in the category of "minor disappointment", is that the synth's operating system is still in ROM, not on the disk - which means that there won't be any of those nifty alternate operating systems available, like there are for the Mirage.

The lack of pressure sensitivity on the ESQ-1 is one of its major drawbacks, but Ensoniq has corrected that omission in the SQ-80, and in spades. The keyboard now senses pressure on each individual key and translates that into either MIDI key pressure, for use by the SQ-80 and any of the handful of instruments that use it, or channel pressure, as used by most pressure sensitive instruments. The feel and response of the SQ-80's pressure sensitivity are, simply put, wonderful. When the synth is set to produce key pressure some incredibly expressive two handed pads can be created, by varying the pressure on either hand or, with practice, on each finger. The pressure sensing hardware seems to have changed the feel of the keyboard somewhat, which may or may not bother you, (I can live with it) and the keys produce an audible click when played hard. One unusual, but welcome, improvement - the surfaces of the black keys have been roughened ever so slightly, so that sweaty fingers won't be as likely to slip off a key. Pressure and velocity sensitivity can each be set to one of four levels, and the keyboard can be routed to the internal sounds, MIDI, or both when playing the SQ-80's "straight synth".

Probably the biggest news about the SQ-80, though, is the new waveforms. These are conceptually divided into a number of groups in the instrument, including waveforms (just like the ESQ's waveforms), inharmonic loops (unusual waveforms with unusual tunings), transient attacks (just the attack portion of a sampled wave, with no looping), drums (drums) and drum sets (same waveforms as in the drum section, but different drums are assigned to different parts of the keyboard.) Here's a random sampling of the names of the new waveforms: STRING, BRASS, PLUNK, CHIFF, BOWING, STEAM, LOGDRUM, SNARE, METAL, TRIANG.... you get the idea. The new waves really do improve the variety of the ESQ sound tremendously, but it's still essentially more of the same stuff. The attack waves are nice, but the fact that they don't loop makes the SYNC and AM features work a little strangely if an attack wave is used on OSC 1 or 2. The inharmonic loops are also a nice treat. The quality of the voices that can be created is evident after a quick tour of the factory sounds, which make extensive use of the new waveforms and the pressure sensitive keyboard.

So what does it all mean? The SQ-80 is not the new "ultra-ESQ" that many of us have hoped for, but in comparison to the original ESQ, it's quite an improvement. If I were buying a new instrument today, I would unhesitatingly choose it over the ESQ-1, even considering the price difference. For those who already have an ESQ-1, though, it would probably be more economical to buy a separate MIDI disk drive, and then wait for the inevitable rack version. The inclusion of a sequencer in both the SQ-80 and the EPS sampler does raise one serious question, though: is Ensoniq going to continue to release a series of "all-in-one" synthesizer/sequencer/keyboard instruments? I, for one, hope not. It makes more sense, even in a live performance setup, to configure a system out of components that each do one job very well, rather than expecting one instrument to do the work of many. Others may disagree, but as the number of sequencers and MIDI controllers in existence reaches a saturation level, I'm sure it will become much harder to sell an integrated system such as this.

Special thanks to ***Synthony Music*** *in Scottsdale, Arizona, for providing me with the SQ-80 for this review.*

Erick Hallstone

The Christmas of my 18th year, I was so excited. I just knew my folks were getting me a car! When I opened my presents, I found a Samsonite brief case and a Norelco rechargeable razor. You can imagine how I felt. Later, I realized how practical and useful these gifts were to my everyday life.

I have been having similar feelings about the SQ-80. I have been aware for some time that Ensoniq had new products on the way and I have come to expect new block-busting technology with each step they take.

Instead, this time around they took an existing product, the ESQ-1, and with a year's worth of user feedback, added features that most of us wish were on the original ESQ-1 - as well as a few surprises.

O.K. It's not a new car, but now that I've got my own expectations out of the way, I'm appreciating this new instrument and how much easier life will be for me and it as opposed to my trusty ol' ESQ.

An ESQ-1 costs $1395. An SQ-80 costs $1895. What do you get for $500?

You get 43 more waveforms for a total of 75. Five of these are drum sets sampled across the keyboard so you can have the sound of really-drums as opposed to something passing as drums. Among these waveforms are high crisp harmonics that will bring sounds closer to those produced by Yamaha DX products or the Roland D-50. Some of these waveforms are sampled attacks, clearly aiming at the D-50's abilities. You get polyphonic aftertouch. This is the one of the few keyboards at all to have this feature and the only one, to my knowledge, under $2,000. You get a sequencer that is twice as big as the ESQ's. 20,000 notes, 60 sequences, and 20 songs. More sequence editing; the ability to delete measures in the middle of a sequence. There is a disk drive on board and disk holder ala the Mirage DSK. This disk drive will store sequences and sounds for SQ-80 as well as system exclusive information for other instruments. What this means is at a live performance you're never more then a few seconds away from new sounds or new sequences for the SQ-80 or other MIDI devices in your setup.

I'm not gonna try to list all of the specifications. They're already in print and literature is certainly available. If you start with an ESQ-1 at $1395, buy a 20,000 note sequencer expander for $119 and an IVM disk drive for $400, well, you're already over the $1895 the SQ-80's gonna cost you.

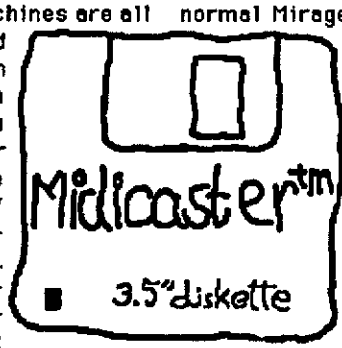
The importance of specific features varies from one person to another. No instrument is perfect and this is why we see new ones every year. It is with these brilliant observations that I register the few misgivings I have with the SQ-80. I would have like to see more outputs on the instrument. With the multisampled drum sets and the disk drive, you can take this instrument to a gig and, with it alone, sound like a full combo. Separate outputs would allow you to be much more selective with equalization and signal processing. The other preference that I have, involves the keyboard. The polyphonic aftertouch is a great feature and, in an instrument at this price, is nothing short of miraculous. Like many new functions, it takes a while to get used to. After you play a note it is not always easy to know when you have reached the point where the after touch will kick in. Ensoniq has addressed this point by using a keyboard that bottoms out in an obvious manner. Where some keyboards are spongy at the bottom of a keystroke, this one hits VERY SOLIDLY. By doing things this way, it is unmistakable where the aftertouch will begin to take over. A byproduct of this (at least on the instrument I had for review) is a clacking noise when the key hits bottom. I would prefer to simply feel the bottom of the keystroke and not hear it.

When the ESQ-1 came out, it was dramatically UNDER-PRICED!! (And still is!) I believe Ensoniq would have sold just about as many ESQ's if it had retailed for $1795 originally! At $1895 there is simply nothing else like the SQ-80!

Special thanks to ***Portland Music*** *for providing both Clark and myself access to the SQ-80.* ■

Now how much would you pay?

Would you buy a disk drive that could quickly and easily store all of your sounds and sequences in one central location? Even if your synths, sequencers, and drum machines are all made by different manufacturers? What would you say if we told you that you could have such a device for only $39.95? Well, if you own a Mirage, Mirage rack, or Mirage DSK, you can! The MIDICASTER is a new product for the Ensoniq Mirage that can turn your Mirage into a powerful MIDI storage device capable of saving programs, sequences and drum machine data directly to normal Mirage disks. MIDICASTER works with most popular electronic instruments that support system exclusive data transfer, and is exceptionally quick and easy to use, making it ideal for live performance applications. And since MIDICASTER works from within the normal Mirage operating environment, there's no need to boot and re-boot operating systems before and after data transfer! Imagine having all of your sequence data on the same disk as your Mirage sounds, and being able to simply load up and go - only MIDICASTER makes it possible. ESQ'1 owners, take note! No longer will you have to boot up your MASOS disk to save or load ESQ'1 data! MIDICASTER will save you valuable time in performance settings, no matter what your data transfer needs are. NO OTHER PRODUCT CAN MAKE THIS CLAIM!



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THE PERFORMANCE MIRAGE

By Duane L. King

Often times we overlook the many things we have figured out for ourselves. We don't realize that we may have stumbled onto some useful techniques other people could make use of - if they only knew about them. For instance, from time to time I need to transpose my keyboard parts up or down a semitone or two. Since I use the Mirage as my master keyboard this is a problem. There really isn't a simple way to transpose. Somewhere along the line I discovered duct tape (also called gaffer's tape, or miracle tape). This stuff is really neat. A three inch long strip of it can easily hold the pitch bend wheel fully up (away from you) or fully down (toward you). Then you can adjust the transpose with the pitch bend range (parameter [22]). I know this doesn't look pretty, but it is very fast and effective. I have successfully used duct tape in performance for transposing parts that I can't easily play in the proper key.

Since the Mirage is my main performance keyboard and I haven't upgraded the memory with one of the memory expanders yet, I have trouble getting all the sounds I need in memory at once. Here's what I did about it: way back when I first got my Mirage I was totally confused by disk number 2. If you've never seen or heard of this disk, which contained synthesizer sounds, here's a recap. It contains a different sound on each program. The lower programs cover the entire keyboard. In order to load the upper programs you have to first load lower bank three and select program four. Then you can load and hear the upper programs on all but the lowest key. The bottom key plays a rock vamp in E-minor. This isn't very useful in itself but it illustrates a good technique. I substituted a plain sound for the rock vamp sample and adjusted the parameters on program four to make the sound of the lowest key blend in with whatever sound I was playing on the rest of the keyboard. This let me have seven sounds on the keyboard at the same time and I can play the entire keyboard without getting any nasty surprises.

Disk two was discontinued so not very many people have it. But you can make your very own version of it without too much trouble. Your main problem is memory. Pick three samples or sample pairs (for mix mode sounds) for the lower bank and four for the upper bank. Now pick a fourth sound for the lower bank. This last lower bank sound should only be used by one program - say program four. Set the top key (parameter [72]) for this fourth sound to 1. Set the top key for the other three lower bank sounds to 61, and set the top key for all the upper bank sounds to 61. That's all there is to it. When you select lower program four, the upper bank sounds are 'uncovered'.

After I have put a bank of sounds together, I adjust the relative amplitude (parameter [69]), sustain amplitude (parameter [53]), and sustain amplitude velocity sensitivity (parameter [57]) to make sure all the sounds in the bank have similar volume levels. I use the VU meters on my keyboard mixer to do this. Since the VU meter is the most accurate near 0, adjust your mixer level up or down until the sustained portion of the sound is near zero. Chorused sounds are sometimes more difficult to adjust because the chorusing causes the volume to swell and fade. For difficult sounds just try to adjust the level of the sound so the needle swings back and forth with zero near the middle of the swings.

When you cram several sounds into the same bank they tend to sound thin. Chorusing can only do so much to fatten or punch them up. The simplest and most versatile solution is to double the Mirage with something else. I chose a DX100 because it is 1) cheap, 2) eight voices, 3) recognizes sustain over MIDI, and 4) responds to MIDI key velocity. You can use any synthesizer that recognizes MIDI. Once you hook the MIDI out from the Mirage to the MIDI in on the slave synth you have entered an entirely new world of sound making. You also will need an entirely new bag full of tricks to make the Mirage and the slave work together as one instrument.

For starters, try every combination of the presets on the two instruments. Don't think, I repeat, DO NOT THINK. If you try to guess which combinations will work and which won't, you will miss out on some surprises. If your slave synth has a lot of presets and you have most or all of the Mirage disks, you could spend a long time doing this, so don't try to listen to all the combinations at once. Find some logical method for exploring your extended 'sound space' and spend whatever time you can spare on the search for new and exciting combinations.

If you already have a keyboard mixer - great. If not, get one. Try to get a stereo mixer if you can. Radio Shack sells a good one for under $200. Stereo can be used as an effect when you have two or more instruments stacked. For example, select a brass sound on the Mirage and on the slave. Pan the Mirage to the left by about 30%. Pan the slave to the right by the same amount. When you play sustained notes on the Mirage, with the slave following, one of the two instruments will probably attack faster than the other. This slight delay is perceived as space by the ear - like in a large auditorium or concert hall. Another nice stereo effect can be achieved by detuning the master or slave. With the pan controls set as outlined above you can get a nice shimmering stereo chorus.

Now you have a basic setup consisting of your Mirage, a slave keyboard, and a mixer. This is a good basic performance setup. All you need to do now is make a bank of sounds for the Mirage and double them with the slave. In order to do this you need to sit down in front of your setup with pencil and paper. Select lower program one on the Mirage and write down what program number that selects on the slave. Do the same for each lower program and each upper program. Also record what program is selected on the slave when you load each of the individual banks if you plan to do that during performance. When you finish doing this you are ready to start picking sounds on the slave and moving them to the correct program locations. When you finish moving the sounds around you can control your sound selection entirely from the Mirage. This works great! You can set the slave on the floor if you don't intend to play its keyboard. When you make a program selection on the Mirage, the slave will change also.

I've made a couple of assumptions about the slave; 1) it can respond to MIDI program change commands, 2) either all the program locations are modifiable or the slave has a bank feature that allows you to map MIDI program numbers into the RAM program locations on the slave. If your slave can't do these things you will probably end up manually selecting programs on the slave. This technique suffers from one limitation - unless your slave has RAM cartridges or you load it from tape or disk, you will be limited to one complete setup of sounds. In other words, your performance setup will be fixed in concrete. You may find that you can make up a second bank of sounds on the Mirage that will work with the program set on your slave, but unless you can quickly reprogram the sounds on the slave, you are basically stuck with a maximum of seven setups.

But wait! Don't give up yet. One day while struggling with sound combinations and setups I stumbled onto something. Since I use the Mirage setup described earlier - lower program four gives access to the upper programs, I really can get eight sound setups. When I first load in my performance bank, lower and upper program one are selected. If I select lower program four, the upper bank sound is 'uncovered', the slave switches to the appropriate sound and I have one setup. If I then select upper program one - which doesn't change the sound on the Mirage because it's already on that program - the slave will switch programs! Great, now I can use two different sounds on the slave to double the upper program one sound on the Mirage. If I want to select the first combination, I select upper program one first and then select lower program four. If I want the second sound combination, I select lower program four first and then select upper program one. Now on the Mirage, the results are the same no matter which order the two programs are selected, but on the slave you will get the sound selected by the last program change. That's why the order in which the programs are selected is so important.

Some of you may have already figured out that this is not the end of it yet. You can use any of your four upper bank sounds with the slave sound that lower program four selects. Simply select the upper sound first and then select lower program four. This causes the slave to switch to the same sound for all of your upper programs. If you want the slave to follow the program changes of the Mirage, select lower program four first and then select the appropriate upper program. It's not as complicated to do as it is to explain!

Several months ago I stumbled over another way to squeeze four additional setups out of my keyboard. I was dinking around with the Mirage and decided to load my performance bank off disk and do a little practicing. When I selected the correct sound on the Mirage, the slave would switch to the wrong program. I tried several program changes and nothing worked. I thought I had somehow messed up the programs on the slave. Also, I couldn't access all my upper bank programs - this was the clue! I suddenly remembered that I had left the upper/lower program link (parameter [25]) on. When I switched it back to off, I could suddenly do program changes and get the correct combination of sounds on both instruments. It wasn't until later that it dawned on me that this mess-up could be very handy. When the upper/lower program link (parameter [25]) is on, program changes on the Mirage not only select the upper and lower programs together, but transmit a different program change number to the slave! Now I take advantage of this obscure fact by using a second bank of sounds on the Mirage that gives me four sounds. These sounds are not as thin because I can spread four samples across the keyboard. I double these four sounds with four other programs on the slave. When I want to use the four-sound performance bank, I load it in from disk, set parameter [25] to ON, and select one of the four programs. When I want to use the eight-sound performance bank, I load it in from disk, set parameter [25] to OFF, and select the program I want. This is easy to remember and gives me twelve setups!

Once you have made a performance setup on both the Mirage and the slave, edit the levels on the slave and the Mirage to produce the desired blend and volume level for each sound. Use the VU meter on your mixer to help you set the volume levels the way you need them for each setup.

If you plan to use pitch bends or the transposing trick with a slave attached to the Mirage, you will need to edit the pitch bend amount on the slave and on the Mirage (parameter [22]) until you get what you want. You don't have to make them bend the same amount. If the slave stores the pitch bend amount on a per patch basis (the DX100 does), then make all your adjustments on the slave. Otherwise you should just set both instruments to bend the same amount. I call this a 'unison bend'.

If you use the mod wheel at all, make sure that you set up the slave to behave the way you want it to. On some patches I like to control how fat the sound is. One way that works real well for me is to put oscillator mix on the mod wheel and set the slave to ignore the mod wheel. Since the DX100 stores mod wheel routing on a per patch basis, I can have different mod wheel effects on different patches. Sometimes I set the DX100 for LFO modulation via the mod wheel and set the Mirage to do the same. If you set the LFO frequency on the two instruments carefully you can get interesting effects with small amounts of modulation.

You can also do edit parameters on the Mirage during performance. I try to keep it simple. In my setup I tune the Mirage slightly sharp of my slave. This gives a very light chorusing. Sometimes I want more dissonance so I edit the master tune (parameter [21]) up one or two notches. The way I do this is to select parameter [21] before I ever start to play. No matter which banks I load or which programs I select, parameter [21] is ready to be modified. Simply press the up or down arrows during performance to change the tuning of the Mirage. The tuning of the slave will not be effected because it will ignore the system exclusive messages generated by editing. If your slave is another Mirage, it will be affected by the editing.

It should be obvious by now that adding a slave to the Mirage really opens up new possibilities, and difficulties. It is more complicated, but what did you expect? We are taking two instruments - possibly from different manufacturers, and putting them together to use as one entity. So try some of these things - even if you have to borrow another synth from someone. You will love the new sounds and the new effects, and the 'fatness' that layering gives you. Come on, GO FOR IT! ■

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By Erick Hailstone

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(800) 553-5151.

For some time I've had this sense that ENSONIQ might back off on their sampling efforts for the Mirage. In that light, the arrival of this disk makes for a happy occasion. I've been hearing rumors of many more disks on the way and if this disk represents the quality of those efforts, that's terrific.

SAMPLE 1

LOWER: 4 FRETLESS BASS SOUNDS

L1: I wish I could identify this sound with a particular bass player because it would give you something to connect with. No one comes to mind. The sample starts at the lowest C and ends at F#3. It seems to have been running through a chorus when sampled. This appears as more of a growl in the attack than lingering chorusing. The attack is quick so you can play staccato funk lines. It's not as crisp as a popped bass, but a nice compromise for legato and staccato playing. The mod wheel controls vibrato.

L2: Similar to L1 with the following alterations. The resonance of this sound is centered more in the mid-bass area. This is achieved by dropping one of the wavesamples used in L1. The end result is a more synthesized sound that is not as round as L1 and has more bite to it. Mod wheel controls vibrato.

L3: The mod wheel controls the OSC MIX. When the wheel is centered the sound is the same as L1. All the way forward is approximately the same as L2. All the way back is a nonchorused version of L1.

L4: Again the mod wheel controls OSC MIX. This time we start with a sound very similar to L2 with a slightly different resonance. As you move the wheel forward the sound becomes thinner and brighter. There is no chorusing in this sound.

UPPER: KEYBOARD HARMONICA

U1: Stevie Wonder look out! This a great sample! You can use this in the same way as a chromatic harmonica or melodica. I haven't checked this but the loop point is so invisible that it must occur almost immediately adding to the attack of the note. You can add vibrato to the mod wheel by setting parameter 31, LFO DEPTH, to about 11. Getting the pitch raised is a bit more tedious. You can do this by changing parameter 67, RELATIVE PITCH - COARSE. You have to do this with all of the wavesamples that combine to create this sound. Select parameter 26, WAVESAMPLE SELECT. Make sure the value is 1 and that you are working on the upper parameters. Next, select parameter 67. Change its value from 5 to 6. Next, select 26 and change its value from 1 to 2. Again, select 67 and change its value from 5 to 6. Perform these same changes with wavesamples 1-5, changing parameter 67 from 5 to 6 in each case. You now have the same sound an octave higher.

U2: The same as U1 with chorusing.

U3: The same as U1 but the attack time and velocity control of attack have been altered. The result is that when you press a key down slowly the note slowly drifts in. The faster you press down a key, the faster the attack of the note.

U4: This variation has a slower attack with no attack velocity control. There is also a slight filter sweep starting with a darker filter setting. These changes make the harmonica more hornlike. Try adding vibrato and lowering this sound one octave.

SAMPLE 2

LOWER AND UPPER: DOBRO

L1 & U1: Dobro is an acoustic guitar with a metal resonating plate in the face of it, giving it a brighter sound with less low end. The resonator acts like a metal speaker or megaphone so imagine an acoustic guitar amplified that way. It's most often played with a metal or glass slide. To really get the right effect practice with the pitch and mod wheels. The sample itself is quite good with the loop point noticeable, but not obnoxious. With string instruments of this type it's impossible to get invisible loops - so this is about as good as it gets.

L2 & U2: Chorusing is added.

L3 & U3: Chorusing is added and decay is very quick making it sound as if the strings were being muted.

L4 & U4: A slight downward filter sweep yields an "eeoow" type sound.

SAMPLE 3

LOWER: MANDOLIN MAJOR CHORD
UPPER: MANDOLIN MINOR CHORD

L1: From low C to D#2 is a strummed, naturally sustaining major chord. The mandolin is an 8 string acoustic instrument with paired strings (similar to a 12 string guitar) giving it a natural chorusing effect. From E2 to F#3, identical with no sustain. This is a quick strum with an immediate release.

U1: A sustained minor chord starts on G3 and continues to G4. From there up is the quick strummed minor chord. This is a good complement to the Mandolin sounds on Ensoniq Disk 23 where you have tremolo and solo mandolin. On this disk you have strums to use as an accompaniment. Try variations of sustained and released major and minor chords. You can get some real folksy stuff going. Hard to imagine doing blue grass music on electronic keyboards but all the tools are here. I hope they put out a chord disk like this using acoustic guitars.

L2 & U2: The same chord arrangement is used across the keyboard only chorusing is added.

L3 & U3: Basically the same as L1 & U1 but some minor changes in filtering give a slightly darker sound.

L4 & U4: Chorusing is added and sustain time of all samples is greatly reduced. When you are using these types of strums the faster you play, the quicker you release the strings. I'm sure that this is the reason for this variation.

This is an excellent set of sounds.

One closing thought. I'm not certain the disks available at local dealers let you know who is responsible for each sample but I wish that that information was included. Maybe start some fan clubs. Yeah, that's it! We could have conventions, too. Sorta like Trekies! Yeah, that's it!

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

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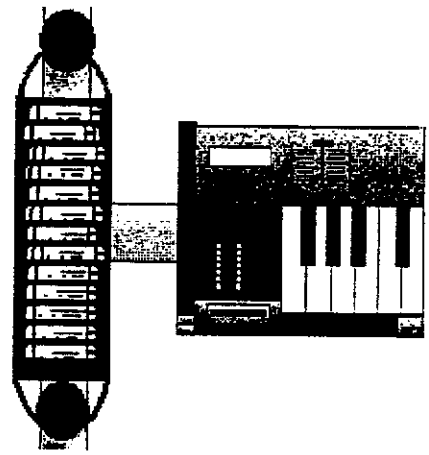

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SOUND HOUND SH-01 VOICE CARTRIDGE

By Rick Hall

FOR: ESQ-1, SQ-80.
PRODUCT: SH-01, 80 Voice ROM Cartridge.
PRICE: $32.50.
FROM: Sound Hound, 5339 Prospect Rd., Suite 141, San Jose, CA 95129, (408) 866-0805.

By now I guess we're all getting pretty jaded when it comes to buying sounds for our ESQ-1's. Not only is there a lot of very similar products out there, but voices do tend to... well, "get around," let's just say, and before long everybody has enough stuff to keep them busy without feeling compelled to spend more money for something new. Discerning composers and players, however, always have their ears open for really special sound material, and if it can be had at a reasonable price, so much the better.

One such gem crossed my desk recently in the form of the SH-01 80-voice ROM cartridge for the ESQ-1 by Sound Hound Software. I was impressed by this offering for a number of reasons. First of all, these sounds were created with a purpose in mind. The Sound Hound ad describes them as "voice patches designed specifically for Modern Rock and New Age music," and after listening to them I can see how they readily fit that description. But what I liked most was what was stated in the program notes that accompany the cartridge: "...This cartridge isn't meant to be the 'be-all-and-end-all' of all ESQ sounds. You'll immediately notice that it doesn't contain the standard clarinet, clavinet, piano, sax and guitar patches. It was designed to supplement your existing library of sounds with musically useful 'synthesizer-type' textures." Hmmmm. An interesting notion... Sort of a sonic "Hamburger Helper," eh? Well, not entirely, but the patches do reflect the intent. One of the ways in which these voices fill that role is by utilizing the variety of waveforms offered by the ESQ-1. There are several unusual combinations here, some examples being a vocal/bell mixture in Bank A1 called ST.ANN, or the twinkling velocity-sensitive string patch in Bank A4 named (appropriately) BEAUTY. Another device employed in many of the sounds to achieve "bigness" is the application of a long release time. This gives the sound a reverb-like quality which, when doubling another track in the sequencer, can really add dimension to that track while keeping the other tracks "dry."

There is a group of ten bass patches in Bank A2, and most of these are rather percussive -- in fact, a few are even in mono mode, making them unsuitable for anything but staccato playing. And I should mention that there is a lot of LFO-controlled panning added to many of these sounds, some of which was, to my ears, a bit excessive. But programmer Rob Campanella has assembled a neat little collection here of shimmering pads, solo voices, and textures which any New Age type (and no, we don't like the term either, but you know who you are, you little dickens...) should find very useful. There is a full page of "playing tips" included, along with a thoughtful note describing in clear steps, for the absolute non-programmer, how to shorten the release time if less "reverb" is desired.

And all this for $32.50. On a ROM cartridge, not a tape. Folks, I don't want to sound like a shill for this guy, but that's a good deal. And considering the fact that Ensoniq has licensed 27 other of Campanella's sounds for their own series of eproms, I would suggest that those of you who are still nosing around for quality craftsmanship at an affordable price look no further. 'Nuff said.

Bio: Rick Hall is a Philadelphia-based composer, musician, and all-around bon vivant. He spends considerable time "drowning in spaghetti" in his own chord-entangled home studio, and has recently had the audacity to form his own music publishing business. ■

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SH-01

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LOOPING USING VISUAL EDITORS

PART 2. CROSSFADE LOOPING

By Walter Daniel

CROSSFADING. Most samples of acoustic ensemble sounds cannot be looped with the two techniques described in Part 1. The next step is to blend data within the sample to smooth loop points. There is some discussion of crossfade looping in the Tom Metcalf interview by Richard Boulanger, Issue #13, pages 7-8. Blending waveform data is known as "crossfading" because data is faded across another section of data. These operations are accomplished by performing fade-ins and fade-outs, then adding the results. MASOS provides memory copies, linear fades, and additions. Unfortunately, human hearing is logarithmic, so linear fades have an audible dip in volume in the middle. There are two ways around this problem: using a visual editor that provides logarithmic fades or using bilinear fades. I introduced the concept of bilinear fades back in Issue #22 of TH, so a quick peek back might not be a bad idea. In short, the bilinear approximation to logarithmic fades makes use of the fact that logarithmic curves are above straight lines, so a two-stage linear scaling is constructed with the midpoint above the corresponding logarithmic value. A bilinear fade-in is a scale over the first half of the section with factors $FF to $C0, then over the second half with factors $C0 to $00. But do these fades SOUND good? They sure do to me. If these fades sound good to you, that's all that matters.

For example, a bilinear fade-out from $00 to $3F would be accomplished in two steps: first, scale from $00 to $1F with factors $FF to $C0; next, scale from $20 to $3F with factors $C0 to $00. With these MASOS operations, the sample within the start pages (parameter #86) will always be $00 and the sample within the end pages (#88) will be $FF. Sending MASOS commands via MIDI with a visual editor is definitely the way to go. It's much easier to keep track of what is happening when all the necessary information is on the screen at once instead of using parameters #85-#90, #94-#96, and the MASOS function key. Note that clipping can occur when bilinearly-faded sections are added. This is usually not a problem because looping is done with sections of samples after initial transients that are of higher volume. As long as the loop material is within the range of -84 to +84, clipping cannot occur. One can safely exceed these limits at times, just check the added waveform for clipping when done.

REVERSE CROSSFADE LOOPING. This method is something of an enhancement of bidirectional looping. If the transitions between forward and backward portions of the loop are not smooth, blending the two portions can create an acceptable loop. As with bidirectional looping, the first cycle after the start of loop should be roughly the same when reversed and inverted. What this technique gains over bidirectional looping is that there is no requirement on the end of the sample. After locating a suitable start page and rotating to line up a zero crossing, select a loop end page. Since there is no requirement on the loop end data, choose a page with a convenient address for ease in fading operations. Perform a bilinear fade-out on the loop portion, then copy the data to another location. I usually use the same addresses in the other bank just for simplicity. Reverse and invert the copy, then add it back to the original loop portion. The loop start (#62) and end (#63) pages will be as chosen; the loop end fine adjust (#64) is always set to $FF in this method. The smoothness of these loops is dependent upon how close the first cycle at the loop start is to being the same when reversed and inverted. Phasing of the crossfaded portions is possible if the sound was not sampled to line up with page boundaries. Sampling so that one cycle of the waveform is on each page minimizes such phasing.

Figures 1-3 are plots of an ensemble vocal sample that has a reverse crossfade loop. Figure 1 is the start page. Note that the cycle that begins on this page, when reversed and inverted, is almost identical to the original. With the loop start page (#62) of $20, I chose an end page (#63) of $EF for a long loop. After locating the desired cycle and rotating so that page $20 began on a zero crossing, I performed the fade out. For the bilinear fade, pages $20-$87 are scaled with factors $FF to $C0, then pages $88-$EF with factors $C0 to $00. (Note that if I had chosen $DF as the end page, the midpoint would have been page $80, an easier number to remember.) I copied pages $20-$EF to the other bank, reversed and inverted the copy, then added the copy back to the original. Figure 2 is the loop end page; note how the end of Figure 2 matches with the start of Figure 1, but is reversed and inverted. Figure 3 is the page just before the loop start. Note how the end of the crossfaded page in Figure 2 is different from the end of the page just before the loop start (Figure 3). As a result, this loop is reasonably good, but clicks when higher-pitched keys are played. Reverse crossfade looping can be effective, but it relies upon there being a cycle suitable for the start of the loop. To be free of that restriction, we now move to the final technique.

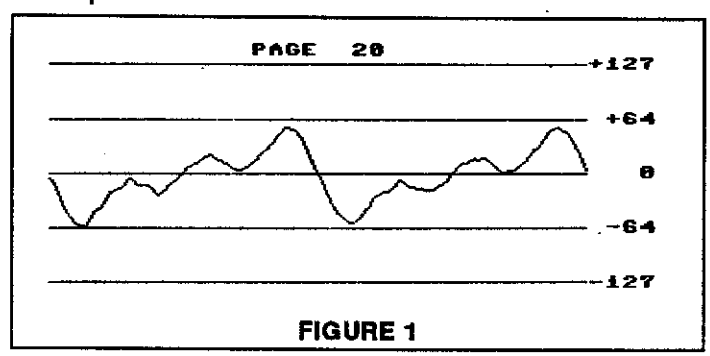

FIGURE 1

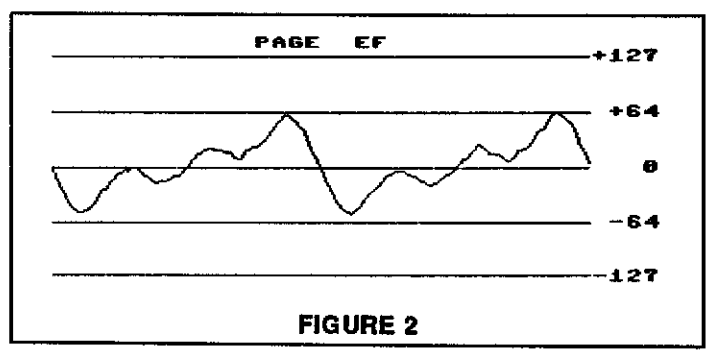

FIGURE 2

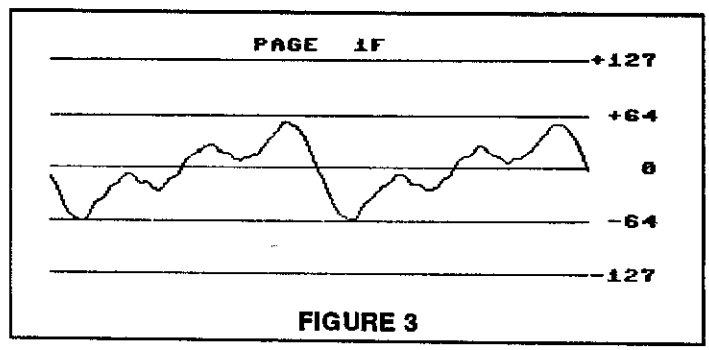

FIGURE 3

ENDFADE LOOPING. This method is the most complicated, yet the most subtle. It is probably the best overall technique and always works if the lengths of the fades are chosen properly. The concept is to fade data from just before the loop start into the end of the loop so as to recreate the original crossing with the loop. After lining up a zero crossing on the loop start page, search for a loop end page that is similar to the page just before the loop start. The closer the match, the shorter the endfade needs to be. If you can find a decent match - not good enough for ordinary looping, but similar in shape and amplitude - the endfade can be as short as 32 pages. If a decent match cannot be found, the endfade must be longer (64 pages, for example) to keep the loop smooth. The section of the chosen length just before the loop start is copied to another location (typically the same addresses in the other bank), then faded in with a bilinear operation. The section of the same length at the end of the loop is faded out, also in a bilinear fashion. The faded-in copy is added to the faded-out section to create the endfade loop. As with reverse crossfade looping, the loop fine adjust (#64) will always be $FF. Also, phasing of the crossfaded section is possible if the sample was not lined up with page boundaries. Sample sounds with one cycle per page to avoid this problem. If you don't believe me as to the utility of lining up the sample with page boundaries, take a look at some Ensoniq samples!

Figures 4-6 are plots of a vocal sound that was sampled with one cycle per page and looped with the endfade method. I chose page $40 as the start page so that I could have an endfade length of up to 64 pages. This sample had no initial transients. If a sample does have initial transients, the loop start page must be chosen so that the endfade portion from before the loop does not begin until the transients have settled. See the Tom Metcalf interview for a discussion of this problem. I searched for a similar page for the loop end; I did not get a very good match, the closest being page $AF. Therefore, I used the full 64 pages available for the endfade to smooth the loop. I copied pages $00-$3F to the other bank, scaled $00-$1F with factors $00 to $C0, then scaled $20-$3F with factors $C0 to $FF. I scaled the original pages $70-$8F with factors $FF to $C0 and pages $90-$AF with factors $C0-$00. I then added the faded-in copy of $00-$3F to the original $70-$AF for the endfade. Figure 4 is the loop start page (#62); Figure 5 is the loop end page (#63). The endfade technique is designed to gently turn the end of the loop into the same as the data just before the start of the loop. Therefore, Figure 5 should resemble Figure 6, the page before the loop start. As you can see, it does match, becoming identical at the end (right-hand side) of the page. This loop is quite smooth throughout the assigned keyboard range.

CONCLUSIONS AND RECOMMENDATIONS. If you've waded through both parts of this article, I thank you for your patience. There's a great deal of material here, so it might take a while to absorb it all. My conclusions are essentially that anyone with a visual editor, the most useful ones being those that can send MASOS commands via MIDI, can learn to loop virtually any sample. It does take some work to understand all the techniques and practice to make them work. I recommend that one learns all four techniques, but becomes an expert

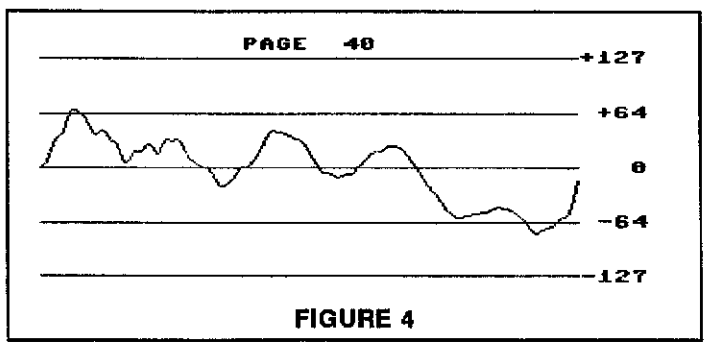

FIGURE 4

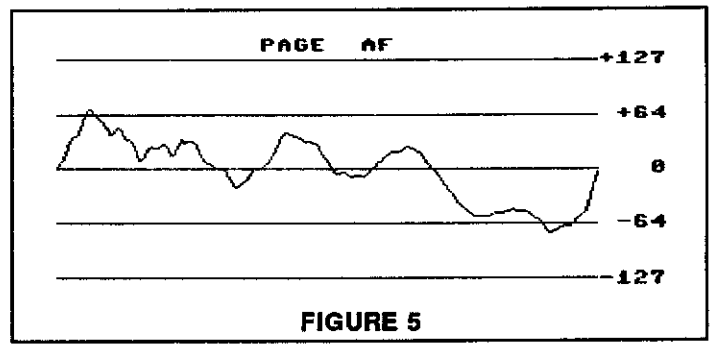

FIGURE 5

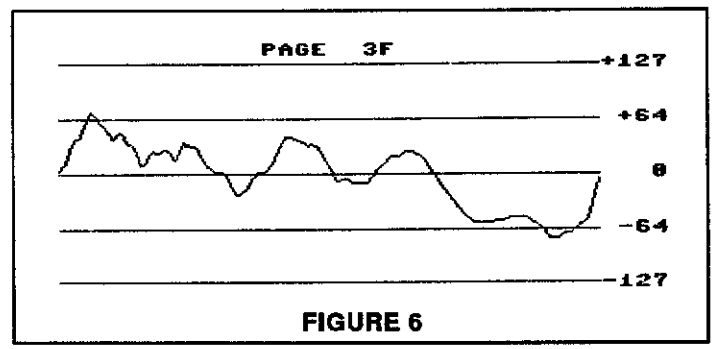

FIGURE 6

with endfade looping. Even samples that can be looped by matching cycles can benefit from some endfade manipulations. An almost-perfect match can be turned into a perfect one with an endfade. Looping is as much an art as it is a science, so keep trying. Besides, we're all musicians, aren't we?

Bio: Walter Daniel does his sampling in the Hanover, Maryland area. His Compuserve I.D. is 75066,164. ■

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THE PATCH BAY

Patch Reviews By Chris Barth

SOFTWORX

FOR: ESQ-1, SQ-80.
PRODUCT: The Worx, 1600 sounds, cassette or Mac or C-64 disk.
PRICE: Was $199, now $99.
FROM: Softworx, 8402 Clover Hill Loop, Bayonet Point, FL 34667, (813) 862-6032.

If you like adventure and the excitement of exploration, then stop reading this review and order as many sounds as you can afford from SOFTWORX. These patches are ideally suited for you if you're bored with your present collection of sounds. The set of 40 patches which I received for review may or may not be representative of the whole catalog. However, there is a tremendous amount of clever programming in this set; the question is whether you'll be up to the challenge.

SOFTWORX offers some of the most interesting new age and space music patches I've come across yet. JIMI'S BLUES 2 is a very original combination of sine waves which would be perfect for electronic new music. With the mod wheel off, it reminds me of the sound made when small stones drop into a pond of water; not a splash, but an electronic "plop" which reacts differently depending on how hard you play the notes. Move up the mod wheel, and suddenly the vibrato is so extreme that the sound is completely different. Now it's like a boiling cauldron. This is not a patch for nightclubbers. This is home studio stuff, new sounds for a new age. You'll have to work with this, and if you do, the rewards are there.

PHANTOM, OBX3, AIREY, and MOTELS 2 are all perfect for electronic music applications. Along with HAIR and D50-3, there is enough here to keep you busy for a long time. Again, don't expect these patches to fit in with your wedding gigs. Some of these patches really don't sound like anything else I've ever heard; finding the proper home for them will definitely take work.

FOLDS 2 and "J" are both for special applications and took me by surprise until I could figure out what to do with them. They're similar in that the negative modulation is used to simulate pitch dropping and then rising. The wrinkle is that it takes one or two beats per measure, depending on the tempo of your composition. I discovered that if you hit a note on beat three or four of one measure, the motion is resolved on the first beat of the next measure, and that sounds great. If you put this in the right context (and good luck finding it - send me a tape when you do), this can be very impressive. Try it during "The Wedding March" and you'll be in "The People's Court".

The set includes a number of acoustic sounds which are very well done, and only a few that aren't. SAMPLED PIANO is by far the loudest piano patch I've come across yet and a personal favorite of mine; it sounds like an amplified stage piano with your head leaning against the amplifier. For rock and rollers, this patch is perfect. It sacrifices tone and subtlety for VOLUME! For those of us who still have most of our hearing, PIANO 11 is a very nice patch, offering more tone and color in exchange for a softer sound. LONDON STRINGS is great; these are not real strings we're hearing, it's what people call Hollywood Dream Strings. Play slow chord changes and suddenly it's the London Symphony at your beck and call. This is a pro sound which we'll probably hear again. SIX STRING FINGER PICK is also remarkably good, although technique is everything with guitar patches.

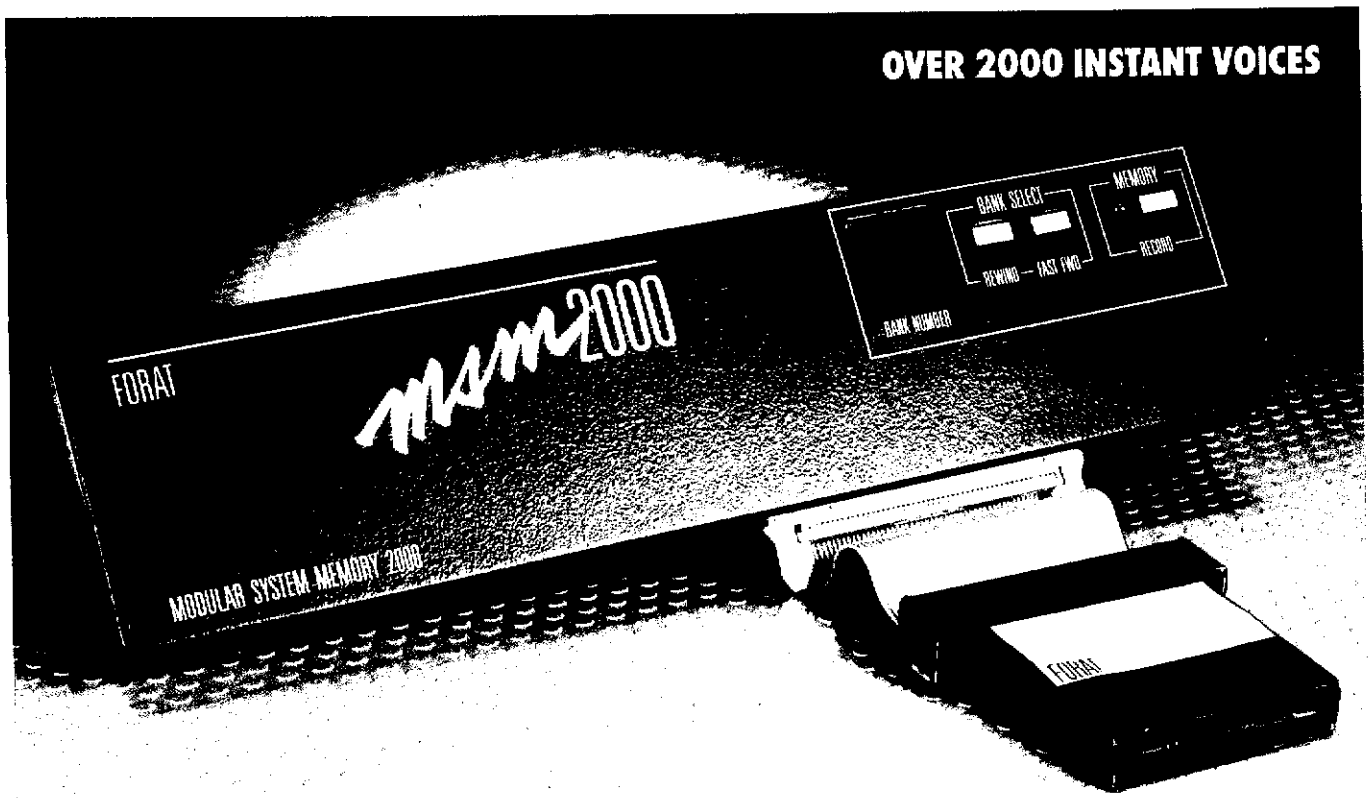
Two of these patches also appear on Ensoniq cartridges. SAX 1 shows up as B SAX 1 on Volume 2 from Ensoniq. This is probably the best sax to come down the pike so far. You can really hear the reed vibrate on this one. It sounds like the big Clarence Clemmons sound on the Bruce Springsteen albums. If you record a sax part three times, once with a little pitch bend and mod wheel vibrato, once without, and a third time one octave higher, you've just hired yourself a bitchin' sax section! STRIKE 2 shows up on Volume 5 from Ensoniq because it is a great sawtooth synth sound - fat, authoritative, and useful throughout the whole range of the keyboard.

JOVI duplicates the vocoder sound - a highly processed human voice played instrumentally (remember the Peter Frampton live album which ruled the world in 1976?), and it does it very well in a limited two octave range to the left of Middle C. FM BELL ORGAN is one of my favorites, a nice light organ patch with a hint of bell. EXPRESS is very original - a combination of piano and kick waveforms resulting in a bright lead keyboard sound that really cuts through when you need it.

There's really only a few disappointments in the whole set. The alleged BANJO patch is really another koto (a Japanese harp) in disguise, and the MELLTRON patch is a weak vocal chorus. The TROMBONE patch works, but only with lots of effort and the right playing technique. ELP 3 is so bright and piercing that I had to edit it right away before every dog in the neighborhood showed up.

If you spent fourteen or fifteen hundred dollars to get your synth, it seems a shame not to spend a small percent of that amount now and then to refill your synth with new sounds. This little excerpt from the SOFTWORX collection offers a fine mix of original electronic and space music sounds coupled with useful keyboard and string patches. The word which comes to me is "inspired", and if you like living on the edge, these patches cut like a knife.

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



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ESQ-TIPS

USING AMPLITUDE MODULATION

By Jim Johnson

[TH - Naturally, now most of this stuff also applies to the SQ-80.]

"....and sync and AM, too!" That pretty much describes my initial reaction to the ESQ-1's oscillator sync and amplitude modulation (AM) capabilities. What sold me on the instrument were its oscillators and envelope generators, but the fact that it sported such throwbacks to the analog world as sync and AM increased my confidence that the ESQ would sound great. So, while I waited for Ensoniq to ship the first run of ESQ-1s, I fantasized about (among other things) all the cool sounds I'd be able to make by combining sync, AM, and the three oscillator DCAs.

As it turned out, much of this fantasizing was, as always, a waste of time since the ESQ-1's AM capabilities are not all that potent when compared to the beast's other features. Apparently, Ensoniq's original concept for the ESQ-1 didn't include AM at all, but they realized at some late point in the design that they could add limited AM facilities with only a few software changes. The result of this is that the ESQ-1's AM button doesn't do quite what an experienced synthesist would expect it to. Even though the reality of the ESQ's amplitude modulation scheme doesn't live up to the fantasy, it's still better than no AM at all, and can be used to good advantage by the crafty programmer. First, let's talk about some aspects of the ESQ's AM feature that aren't discussed in the manual, then we'll look at the theory of amplitude modulation, derive some simple rules of thumb for using AM, and apply them to specific sounds on the ESQ.

One difference between the manual's description of AM and the real thing is obvious if you've spent much time on the MODES screen - AM and sync can't be turned on simultaneously. This is somewhat limiting, but again, better than no sync or AM at all. A less obvious but more serious surprise is that all the controls on DCA1 and DCA2 are inactive when AM is on. DCA2 is mentioned briefly in the manual, but the fact that DCA1 is disabled as well isn't mentioned at all. This doesn't really make much difference in itself, though it can be confusing at first; but losing the DCA on OSC2 limits the usefulness of the AM feature considerably. (The loss here is that having functional DCAs while AM is on would have given the ESQ-1 access to a whole new class of sounds - but hey, our cup already runneth over, so why complain?)

Now that I've told you what AM is not, perhaps a word or to about what AM is would be in order. "Amplitude modulation", to a synthesist, means a periodic (cyclic) change in the amplitude (volume) of a signal (sound). This includes both low frequency amplitude modulation, (such as tremolo created by routing an LFO to a DCA) and audio frequency AM. Normally, the initials AM refer to amplitude modulation of one audio signal by another audio signal.

The sound of AM has often been compared to those produced by FM and ring modulation. The reason for this similarity is shown by the intricate mathematical equations which describe these different modulation schemes, and which we are NOT going to get into in this article. The essence of the math that led John Chowning, and Yamaha, to determine that FM would be a useful way to synthesize instrumental sounds can be summed up in a single sentence:

"Using one audio frequency signal to modulate some aspect of another audio frequency signal will create a new signal whose component frequencies are determined by the sums and differences of the component frequencies of the original signals."

(I know I said we wouldn't get into any heavy math, but this is just addition and subtraction. If you stick with me for a while, it'll get easier. Trust me.)

This statement has two important implications for synthesis. First, it says that NEW frequencies can be generated using audio frequency modulation techniques (AM, FM, ring modulation, filter FM, etc.), and secondly, that these new frequencies depend on the frequencies of the original signals.

The "sum and difference" frequencies mentioned earlier are produced by all types of audio frequency modulation, but in different combinations. For instance, suppose OSC1 produces a sine wave at 100 Hz, and OSC2 a sine wave at 125 Hz. If these two oscillators were fed to a ring modulator, the output would consist of just two frequencies: the sum (100 + 125 = 225 HZ) and the difference (125 - 100 = 25 Hz) frequencies. AM is similar to ring modulation, except that the original frequency components are present in the output in addition to the sum and difference frequencies. For the ESQ, the output signal would contain components at 25 Hz, 100 Hz, 125 Hz, and 225 Hz. If we were using OSC1 to modulate the frequency of OSC2, the output would be quite complex, but may still be described in terms of sum and difference frequencies.

Here's a practical example to illustrate the presence of sum and difference frequencies. Start with the BASIC patch from the ESQ-1's factory sounds, and make the following changes:

```
OSC1 WAV=SINE, MOD1 DEPTH=0
OSC2 OCT=0, WAV=SINE, MOD1 SOURCE=WHEEL, DEPTH=14
DCA2 LEVEL=63, OUTPUT=ON
```

Leave AM off initially, and set the mod wheel to zero. Play a key, and you will hear a single sine wave (actually, you're hearing two sine waves - one from each oscillator - at identical frequencies). Now turn on AM on the MODES page, and play the same note again. You will hear a new frequency component one octave above the two oscillators. This is the sum frequency, which in this case is two times the frequency of either oscillator. The difference frequency is zero, so it is not audible.

Now move the modulation wheel up slightly. If you listen closely, three tones will be audible: the outputs of each oscillator, and the sum tone - which is no longer exactly an octave above the other two, but is actually slightly higher. As you advance the wheel further, a fourth, very low pitched tone will begin to appear. This is, of course, the difference tone. None of the four tones will be in tune with one another at this point, but if you move the mod wheel to its maximum position, all four tones will blend into a single harmonious note.

At this point OSC2 is tuned a fifth above OSC1, which corresponds to a frequency ratio of 1:1.5 between OSC1 and 2. The sum and difference tones, then, will be (1.5 - 1 = 0.5) and (1.5 + 1 = 2.5) times the frequency of OSC1 respectively. The frequency ratios of the the four tones are therefore 0.5:1:1.5:2.5, which reduces to 1:2:3:5. This is why the note is harmonious - the four frequency components are integer multiples of a single fundamental frequency.

"Great, Johnson - but what does it MEAN?" Hang on, we'll get there. There's one more important point to make. Try changing the waveform on OSC1 or 2 to some other setting, such as BELL or SAW. Note that the composite AM sound gets buzzier and brighter - and that as the waveform gets more complex, the sound gets MUCH more complex. This is because the AM signal contains not just sum and difference frequencies generated from the fundamental frequencies of the two input signals, but also the sums and differences of all of the harmonics in both signals!

Now, from all this technobabble, let's distill a few simple rules for getting usable sounds out of the ESQ-1's often ignored AM feature.

- Tuning OSC1 and OSC2 to simple musical intervals such as octaves, fifths, or harmonics will create "musically pleasant" sounds when AM is used.

- If the two oscillators are detuned very slightly from unison, an unusual timbral change that is somewhere between chorusing and beating will occur. This can become very unpleasant in the upper octaves of the keyboard if the detuning is too high.

- If the two oscillators are tuned to more complex intervals such as a seventh or some inharmonic interval, the sound produced when AM is turned on will be rough, harsh, and electronic sounding.

- AM sounds best when simple waveforms such as SINE, BELL, ORGAN, OCTAVE, or 4OCTS are used. If brighter waveforms such as SAW, PIANO, or REED are used, the sound is generally going to be too "interesting" to be useful.

To illustrate these rules, try changing the tuning and waveshape of OSC2 in the modified BASIC patch. To hear the effects of detuning mentioned in the second rule, make the following changes in the ORGAN patch from the ESQ-1 factory sounds:

```
OSC1 FINE=12, MOD1 SOURCE=KBD, DEPTH= -1
OSC2 FINE=0
MODES AM=ON
```

Since the oscillators are both producing ORGAN waveforms (all even harmonics) at roughly the same frequency, turning AM on brightens the sound by emphasizing the second harmonic, as well as adding odd harmonics. The changes in OSC1 and OSC2 create a detuning effect which is more or less constant across the keyboard, unlike normal detuning which "beats" faster on high notes than low.

To wrap things up, here's a patch that makes extensive use of AM to recreate the sound of an old Volkswagen or lawnmower engine, complete with a loose nut on the carburetor. The dissonant interval between oscillators 1 and 2 adds disturbing inharmonic overtones to the already grungy sound of the KICK waveform when AM is on. If this is played on the bottom note of the keyboard (or lower, using an external controller or the ESQ-1's pitch bend wheel) the inharmonic overtones will form a complex rumble that sounds like a poorly tuned internal combustion engine. The loose nut, which is simulated with OSC3, is also created using amplitude modulation - the noise from OSC3 is modulated via DCA3 by noise from LFO2, which is in turn modulated by its own output.

PROGRAM: JUNKER

	OCT=	SEMI=	FINE=	WAVE=	MOD#1	DEPTH	MOD#2	DEPTH
OSC1	-1	6	11	VOICE2	ENV3	10	LFO1	-53
OSC2	-3	0	0	KICK	LFO2	0	ENV1	0
OSC3	-1	0	0	NOISE2	LFO1	10	ENV1	0

	LEVEL=	OUTPUT=	MOD#1	DEPTH	MOD#2	DEPTH
DCA1	0	OFF	LFO3	0	LFO3	0
DCA2	0	OFF	LFO3	0	LFO3	0
DCA3	17	ON	LFO2	-63	*OFF*	0

	FREQ=	Q=	KEYBD=	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	96	0	0	WHEEL	63	*OFF*	0

	ENV4=	PAN=	MOD=	DEPTH
DCA4	63	08	KBD2	0

	FREQ=	RESET=	HUMAN=	WAV=	L1=	DELAY=	L2=	MOD=
LFO1	21	OFF	ON	NOI	44	0	21	LFO1
LFO2	63	OFF	OFF	NOI	63	63	63	LFO3
LFO3	16	OFF	OFF	NOI	0	1	20	WHEEL

	L1=	L2=	L3=	LV=	T1V=	T1=	T2=	T3=	T4=	TK=
ENV1	63	-63	-63	0	0	0	7	0	0	9
ENV2	63	0	0	0	0	0	30	30	20	9
ENV3	63	33	0	0	0	0	9	11	20	0
ENV4	63	63	63	0	63	46	26	5	37	9

	SYNC=	AM=	MONO=	GLIDE=	VC=	ENV=	OSC=	CYC=
MODES	OFF	ON	OFF	53	OFF	OFF	ON	OFF

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

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. ■

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OSC1 OCT:-1, S:00, F:00, W: NOISE 3, MODS =+00
OSC 2 OCT:-1, S&F:00, W: NOISE 2, ENV1=+09, KBD=+27
NO OSC3. SET DCA 1 AND 3 TO "OFF," OTHERS DO NOT MATTER.
DCA 2 L=63, OUT:ON, MODS=+00
FILTER: FREQ=093, "Q"=10, KYBD=00, MODS=+00
DCA4 ENV 4=63, PAN=08, MODS: KBD2=+50
ENV 1+63, +63, +63, 00, 00, | 00, 63, 63, 63, 00
ENV 4 +63, +56, 00, 00, 00 | 00, 24, 40, 18, 00
MODES SYNC: ON, VC:ON, OSC:ON (OTHERS=00/"OF")
Chorus this and use room type reverb. Lower OSC2's ENV 1 level to reduce the key-up glitch. The filter's "Q" controls the "thickness."

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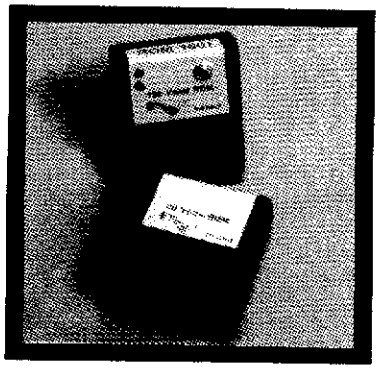

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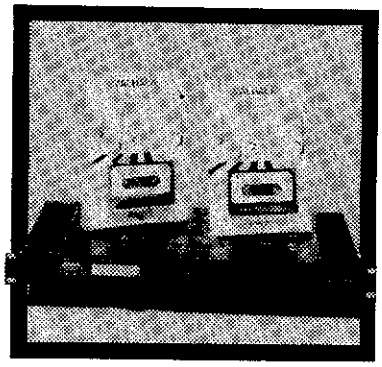

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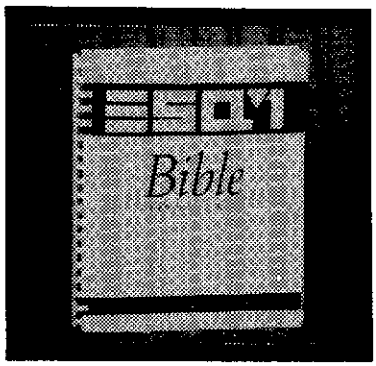

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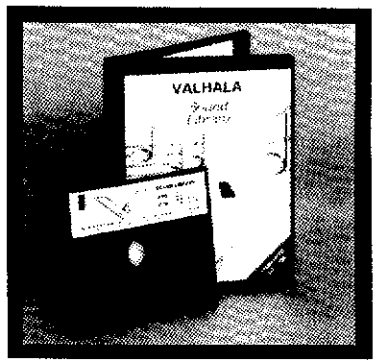

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THE HACKING PART...

This month, let's start out with a stock Ensoniq patch. In current 2.3 ESQs there is a sound called TRIBEL. What I find interesting about this patch is that each OSC is set at its own pitch and uses separate envelopes so that each OSC has its own attack time. OSC3 has an attack time of 00. OSC1 is 17 and OSC2 is 24. The end result is when you press a note down you first hear the OSC's in this order: OSC3, OSC1, and OSC2. You can make this effect more pronounced by making the attack times longer. In doing this you end up with an arpeggiation. Change ENV1 T1 to 24. Change ENV2 T1 to 31. The intervallic relationships of the the OSCs are as follows: OSC3 tonic, OSC1 an octave above OSC3, OSC2 a fifth above OSC3, the end result being that when you press down a note (using middle C for example); C1 - C2 - G1. We can create any three note arpeggiation we want by retuning the OSC. Leave OSC3 alone. Under OSC1, set SEMI to 04. When you press C down you now get C1 - F1 - G1. You can experiment here with many combinations. Given the range of the three OSCs there are hundreds of pitch combinations. Now let's alter the basic timbre of this sound. Set the WAVE of each OSC to BASS. For obvious reasons this will give us a sound more like a stringed instrument. Change T3 on all of the ENVs to 43. This will allow the notes to sustain a bit longer. Here's a nice variation using this new waveform. Set ENV1 T1 to 19 and ENV2 T1 to 23. Set OSV1 SEMI to 06 and OSC2 OCT to +1. These combinations really help to create a strummed string effect.

Play a few notes one after another. Get a feel for how fast the notes follow each other and use that to establish a tempo. Set a metronome to 100 and play quarter notes. At this speed the notes have a chance to ring out without bopping into each other. Try playing intervals and chords. You can discover some very rich voicings with this patch picking notes for you.

Well, that raps up another guided tour through my synthesis thought processes. As always I hope this approach is instructive and gives you some idea of how I relate to these instruments. Keep that card and letter coming.

Erick Hailstone
The MIDI Connection

THE PATCHING PART...

PROGRAM: GINKY

By Bob Hoke (Turtle Beach)

Ginky is trapezoidal, kinda clavinetish, kinda DX-7ish. This started out to be a bass sound but soon developed a mind of its own.

[TH (SM) - That is indeed a nice, FM-type bass, and the treble end of the sound is quite useful, too.]

PROGRAM: SAPHIR

By Nick Longo (Cesium Sound)

Here's a gem of a sound I dug up. Filter resonance brings out upper harmonics. Four modulators augment detuning, resulting in complex phase interference giving a sparkle effect when a key is released.

[TH (SM) - This is a great ethereal sound. Nick used all three LFO's and one envelope to detune the oscillators producing a nice shimmering quality.]

PROGRAM: CRSTAL

By Frank Leister (Leister Productions)

Crystal is a glassy tone - best when the MOD wheel is full up.

[TH (SM) - CRSTAL is a slithery, glassy sound that works best, as Frank says, when the mod wheel is up full. The volume difference didn't work for me when the mod wheel is used, so I changed the DCA levels a bit. I set DCA 1 and 2 to LEVEL=0, and DCA3 to LEVEL=51. Also, I tried changing the waveform of LFO3 to TRI from SQR to smooth it out even more.]

PROGRAM: WOOD 3

By Charles Fischer (Mescal Music)

This a marimba type of sound, useful for sequences and keyboard performance.

[TH (SM) - This sound is sort of a cross-breed between a marimba and a steel drum, useful for tuned percussion parts.]

ESQ-1 PROG GINKY

BY: BOB HOKE, TURTLE BEACH

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	BASS	LFO1	5	OFF	-
OSC 2	-1	0	5	EL PNO	LFO1	5	OFF	-
OSC 3	1	7	2	BASS 2	LFO1	5	LFO2	1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV1	63	OFF	-
DCA 2	0	ON	ENV1	51	OFF	-
DCA 3	0	ON	ENV2	52	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	16	3	23	ENV3	63	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	18	ON	OFF	TRI	0	0	39	WHEEL
LFO 2	16	ON	OFF	TRI	13	0	20	OFF
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	-17	20	0	0	0	50	63	20	9
ENV 2	63	32	57	33	0	0	26	28	20	0
ENV 3	61	10	-1	32	14	3	18	25	20	9
ENV 4	63	57	63	8	0	0	39	48	20	0

	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 SAPHIR

BY: NICK LONGO - CESIUM SOUND

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	1	0	1	OCT	LFO1	1	LFO3	-1
OSC 2	0	0	0	SINE	ENV1	1	OFF	-
OSC 3	1	0	2	BELL	LFO2	1	ENV1	-1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	LFO3	-2	OFF	-
DCA 2	63	ON	OFF	-	OFF	-
DCA 3	63	ON	LFO3	-11	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	75	4	13	ENV3	63	ENV2	-63

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	50	7	ENV3	60

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	ON	TRI	29	32	20	OFF
LFO 2	19	OFF	OFF	TRI	40	52	40	OFF
LFO 3	20	OFF	ON	TRI	63	4	63	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	11	7	8	22	0	4	39	30	20	1
ENV 2	-63	63	63	0	0	3	3	22	25	9
ENV 3	63	34	24	20	0	0	23	35	22	9
ENV 4	63	50	30	0	0	0	42	24	43	0

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

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

ESQ-1 PROG CRSTAL

BY: FRANK LEISTER - LEISTER PROD.

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	5	BELL	OFF	-	OFF	-
OSC 2	0	0	3	SINE	OFF	-	OFF	-
OSC 3	0	0	0	VOICE1	LFO1	0	KBD2	0

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	31	ON	WHEEL	63	LFO2	5
DCA 2	19	ON	WHEEL	35	LFO3	56
DCA 3	39	ON	ENV2	0	OFF	0

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	58	1	19	ENV3	57	WHEEL	29

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO1	10

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	39	ON	OFF	TRI	63	0	63	WHEEL
LFO 2	10	ON	OFF	TRI	9	63	9	OFF
LFO 3	5	ON	OFF	SQR	7	0	7	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	63	21	12	0	0	0	63	63	43	0
ENV 3	63	8	0	8	0	38	56	63	52	18
ENV 4	63	25	0	0	0	30	50	50	38	9

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

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

ESQ-1 PROG WOOD 3

BY: CHARLES FISCHER - MESCAL MUSIC

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	SINE	OFF	-	OFF	-
OSC 2	1	7	8	SINE	ENV1	5	OFF	-
OSC 3	2	3	10	SINE	ENV1	5	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	56	ON	OFF	-	OFF	-
DCA 2	0	ON	ENV3	52	OFF	-
DCA 3	0	ON	ENV3	52	OFF	-

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

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	60	8	KBD2	-3

	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	0	0	0	0	0	2	63	20	9
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	63	47	0	28	0	3	16	34	25	24
ENV 4	63	57	0	31	0	0	12	43	28	24

	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

Philadelphia area ESQ-1 user's group. Lots of public domain patches, programming info, sequencing and MIDI tips, and more. Contact Tom McCaffrey, ESQUPA, P.O. Box 427, Bensalem, PA 19020. (215) 750-0352.

I'd like to find individuals to trade ESQ-1 Sequence/ Sound Data with; also Disk Data that utilizes both the ESQ-1/Mirage thru MIDI. Any user groups in my area? Kevin Muse, P.O. Box 512, Vinita, OK 74301. (918) 256-7060 evenings.

SAMPLES

MR WAVESAMPLE - DX7, Prophet, Emax, Oberheim sounds, Percussion, Sound Effects, Animals, Hits, to name a few of one of the largest Mirage collections available. $9.95 per disk. Compatible with all Ensoniq samplers. Call Jack, (201) 264-3512 after 6 pm EST for details.

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Wanted to buy: Good "rock" guitar samples for Mirage. Van Halen to Holdsworth - whatever! Quality counts. Call or write: Marq Andrew Speck, 313-485-7631. 2714 Washtenaw, #114, Ypsilanti, MI 48197.

TRADE YOUR MIRAGE SAMPLES. Send me a list, or just send some good disks and I'll copy my best on them and send them back. I also would like to trade Apple II+ software, especially MIDI and Mirage programs (no copyright material). Send to: Daniel Wolkoff, 3705 Gates Rd., Vestal, NY 13850.

EQUIPMENT

ESQ-1 for sale. $1095. Two voice cartridges, sequencer expander, nearly new. Philip Chenette, 241 S Ave. 57, #131, Los Angeles, CA 90042. (213) 258-9712.

Rack Mount Mirage. Mint condition. Includes input sampling filter, sound library, and visual editing software (Sound Designer for Mac or Ensoniq VES for Apple IIe). $1099.00 + shipping, or best offer. Contact: David Rogers, 7984 Chagrin Rd., Chagrin Falls, OH 44022. (216) 543-1931.

Passport Design C-64 interface, MIDI 8+, Music Shop, MIDI Player, MIDI Sampler & backups. Even C-64 instant studio - just add disk drive. Make offer. Dennis, 5674 N 37 Milwaukee, WI 53209. (414) 466-9479.

For Sale: SQX-10 Expander cartridge. $20.00 or best offer. Greg Varlotta 714-680-3545.

New DSK Keyboard. MASOS, Advanced Samplers Guide, Sound Library. $1000.00. (415) 351-1301. Leave message. San Francisco area.

MIRAGE WANTED - Keyboard or Rack-mount. Swap Yamaha DX-27 synth w/1520 patches on data-cassettes, plus Yamaha PSR-70, (61 keys with rythms, speakers). Both mint, with pedals, all documentation. Bert Evans, Box 6666, Jacksonville, FL 32236, phone: (904) 398-6888 pm or weekends.

FOR SALE. Model DSK8 Mirage with sequencer expander - mint condition. Asking $1,100. C. Wahlgren, Belleview, FL, (904) 245-4658. (Or trade for Rack Mount.)

Vision Visual Waveform Editor for Mirage. Runs on IBM or compatible. $200 or B/O. Input Sampling Filter with Advanced Sampler's Guide. $75 or B/O. Also selling Yamaha TX81Z rackmount synth (4 months old under warranty) and Roland TR707 drum machine. $375 each or B/O. Receipts, all documentation, and factory packing are included. Call Brian at 415-489-2884.

SOFTWARE

The only professional 12-Bank ESQ-1/ESQ-M Patch Librarian for the Commodore 64/128! Super Fast Action - 100% Machine Language Program! Features: 12 Banks (480 voices) in computer memory at the same time for easy rearranging/ swapping of voices, renaming sounds, printer support and more! Stores over 1500 voices per diskette. Program supports Passport, Sequential, Dr. T, Syntech, Sonus, and compatible interfaces. Continental USA send $35.00. Hawaii/Alaska & Canada send $40.00. Canadian customers payment by Canadian Postal Money Order only in USA Dollars. All prices include prompt shipping! Music Direct, Inc., PO Box 266-B, Hazel Park, MI 48030.

PATCHES

Help! Needed - Good guitar patches (and others). I'll trade percussion/unusual ESQ-1 patches via cassette or Mirage diskette. Also exchanges of effects, percussion... samples (even sequences) for Mirage/ESQ-1. L. Benny Sanders, 40 Falstaff Ave., #812, Toronto, ONT M6L-2E1 Canada.

ESQ-1 Owners: VOICE CRYSTAL X, Blank 80-voice RAM cartridge, CRYSTAL CLEAR, for only $50.00. VOICE CRYSTAL 1, 80-voice E2PROM is DEEP BLUE and filled with 80 voices featuring BANK A; natural instruments: Steinway, tack piano, Rhodes, clav, Taj Mahal flute, trumpet, french horn, bassoon, upright bass, Tomita whistle, fiddle, strings, percussion and... BANK B; electronic instruments: FM piano, FM organ, digital pianos, bell pianos, Moog patches, chorus bass, slap bass, adjustable gated drums/claps. VOICE CRYSTAL 2 is MAGNIFICENT RED featuring BANK A; organs, harmonica, woodwinds, horn section, classical guitar, sitar, bagpipes, steel drum, belltree, cowbell, congas, and... BANK B; studio grand, fusion, fat OBX, electric guitars w/chorus, polymoog, mellow, voice sync, glass bells, bass Moog, techo drumset. VOICE CRYSTAL 3 is here and it's... MELLOW YELLOW featuring all new synth, symphonic and new age sounds... only $63.00 per cartridge. All Voice Crystals are made of transparent high-impact resistant polycarbonate and are FULLY PROGRAMMABLE. DATA CASSETTES available for $16.00 per bank of 40 voices. Specify Crystal and Bank. Mail check or money order to: EYE AND I PRODUCTIONS, INC., 2151 Old Oakland Rd., #224, San Jose, CA 95131. For COD orders and more info, call (408) 943-0139. We pay shipping for COD orders over $45.00. We've often found ways to improve our voices and want to share them with our customers, so we also feature VOICE CRYSTAL UPGRADES published in this classified section every month. Watch for them!

"Sound Menu" wants your programs! Royalties for your freelance, original, ESQ-1 patches. 1 or 100. Interested? Write: Sound Menu, 48 Shattuck Square, Suite 17, Berkeley, CA 94704.

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PATCH UPDATES

VOICE CRYSTAL UPGRADE #4-A3-2.2.
MODEL: VC2
PATCH: AIRFLT
LOCATION: BANK A3
FILTER: FREQ=22
ENV 2: T1=20
ENV 4: T1=08, T4=17
NOTE: Increase in vibrato speed along with decrease in attack time enhances realism.

SEQUENCES

For the ESQ-1 with expanded memory: Classical music sequences from piano and organ scores. Patches to go with the sequences using SOS software and Commodore 64. Send for a free list. Four volumes now available at $14.95 each. Also supplied on data cassette. Don Pribble, 6810 Highway 55, Minneapolis, MN 55427.

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Software Synthesis for Apple II. Upward Concepts' Multi-Temperament Disk and User-Defined Micro-Tonal Scales. Ensoniq Sound Libraries Vol. A and B. Disks 100, 101, 102, FMT-2, C-1, C-2. K-Muse Sound Libraries Select Strings and Killer Comps. NON-MEMBERS: $29.95 each video. M.U.G. members: $19.95 each video. Include $3 shipping and handling. NY State residents add 8.25% tax. Specify Beta or VHS. Checks or MO payable: G-4 Productions, 622 Odell Ave., Yonkers, NY 10710.

OUT-OF-PRINT BACK ISSUES

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

I would be happy to accomodate requests for copies of no longer available back issues of the Hacker. 5 cents per page plus postage. Pat Finnigan, 4606 E 17th St., Indianapolis, IN 46218. 317-357-3225.

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

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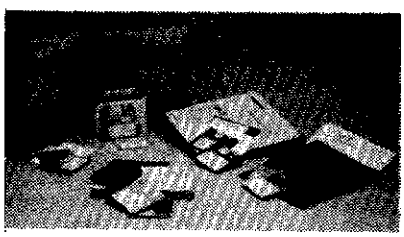

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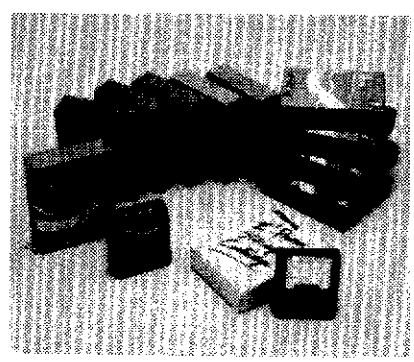

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THE INTERFACE

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. Letters writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt.

Dear TH:

I am a devoted reader and owner of a Mirage-in-a-box since Jan.'86. I am also an Amiga owner, and one of the first to obtain Sound-Lab for Amiga (which by the way is distributed and supported by Blank - not Dr.T., who got the Mac version). Although very expensive and somewhat slow, it seems to be a good port from the (previous) Mac version. You may be interested to know that "Native" sampled sound on the Amiga is pretty popular, since it can provide 4 channels of 8-bit sound via "invisible" DMA. Anyway, Amiga Sound Lab has the ability to read in an uncompressed Amiga IFF 8SVX-type sound and "flip the bytes" (Amiga's bytes are signed), thereby converting them to Mirage format. I could write a PD utility to do this. I have been transferring sounds from the Mirage to the Amiga for a year or so. There are also a few synthesis programs popping up for creating Amiga sounds, "Synthia" from the Other Guys being the newest, "Magic Studio" from Sunrize Industries and my own PD program DRW, which is a 128-sine additive synthesis paint program. Believe it or not, Sound Lab is the first American commercially available patch editor for ANY synth on Amiga! (Others will come shortly ... although grrrrr). I am also an owner of Mirage Monitor, and am trying to stretch the note response space of the Mirage from #36-#96 to #0 to #127. I hope Triton's new system has this feature (arbitrary microtonality on each note number would also be nice).

Anyway, Sound Lab on Amiga seems very close to the older Mac version... so maybe this note will suffice as a review.

Your fan...
J Henry H Lowengard
CompuServe 76625,2425

[TH - With the amount of software, sounds, and patches coming out all the time, it's becoming painfully obvious that there's no way we can devote much space to each of them. Letters like yours definitely fill a need - thanks.]

Dear TH:

Thanks for the informative magazine. It really helps educate sampling neophytes like myself. I would like to see more information on using the Mirage and fewer sample reviews, but you can't have everything (where would you put it?).

I have a few questions concerning the correct use of my Mirage and MIDI:

1. How do I get the internal sequencer in my Mirage to trigger other instruments such as my TX81Z? It must have something to do with Parameter 83 and the MIDI thru port, right?

2. I have an original rack version of the Mirage and I use a Roland MKB-300 as my controller. My problem is that when I push the program change buttons on the controller, the Mirage re-boots and loads in Sound #1 from the disk. My controller doesn't have a program change button like the DX7, how do I get around this?

3. What is happening with the Universal Dump Standard, and will my Mirage work with it?

4. Are there any visual editing system software programs available for the Apple II+ and the Mirage?

5. How about a hard disk for the Mirage like the EMAX?

I would also like to get in touch with a Mirage users group in Orange County, California if there is one. If not, let's start one.

Looking forward to your responses. Keep up the good work, guys.

Sincerely,
Mr. Robin Canada
2571 N Orange Hill Rd
Orange, California 92667

[Ensoniq's response - Question 1: The sequencer in the Mirage can be used to control ANY external MIDI device. In your case, just connect the MIDI Out of the Mirage to MIDI In of the TX81Z. The TX81Z must either be set to OMNI mode or to the same MIDI channel that the Mirage is set to. In addition, Parameter 83 (MIDI Thru Mode) on the Mirage must be set to OFF.

Note that the Mirage will now play both external voices and the Mirage internal voices at the same time; the Mirage sequencer will always play its internal voices.

Question 2: Your Mirage is not actually "re-booting"; only loading a sound from disk. In its default mode, the Mirage is set-up to receive MIDI key, controller, and program change information. It is the incoming program change message that is causing the Mirage to load the bank 1 sound from disk. If you set Parameter 84 (MIDI FUNCTION ENABLE) to 1, the Mirage will send and receive only key and controllers information and incoming program change data will be ignored.

After you adjust Parameter 84, you may want to save the change to disk with Parameter 14 (Save Configuration Parameters). Now when you boot with that disk, Parameter 84 will automatically be set to 1.

Question 3: The Mirage does not support the Universal Dump Standard.

Question 4: We are aware of two such software packages: "Mirage AID" (Neo-Sync Labs, Box 522, Chenango Bridge, NY, 13745) and "Apple IIe/II+ Editor" (Acoustech Software, 5035 Pine Bark Circle, Suite 770, Atlanta, GA, 30338).

Question 5: There are no current plans to manufacture a hard disk for the Mirage. You will be able to access a SCSI hard drive with an optional memory expander on the new Ensoniq EPS Performance Sampler.]

Dear TH,

I have a question about the ESQ-1. I have a brand new ESQ-1 and am experiencing something I don't quite understand. My MIDI set-up before I bought my ESQ included a Mirage, an Apple IIc with Passport software and a newly acquired 360 Systems MIDI patcher. To make a long story short, I'm having trouble with my ESQ sending and receiving all note-off messages. It is outlined in the back of my Mirage manual, but I could not find a thing about it in my ESQ manual. Is my ESQ capable (and I just don't know how to use it yet) or was it not included in OS 2.3? If it was not included, will a future edition have it?

Sincerely,
Jim Hunt
Manitowoc, WI

[Ensoniq's response - Unfortunately, your letter does not provide enough information for us to know exactly what the problem is. If you will call Ensoniq Customer Service at (215) 647-3930, we will try and get to the bottom of it.

The MIDI "all-notes off" message is a problematic one because of the way some manufacturers have implemented it on certain instruments (i.e. sending "all-note-off" messages when "key-up" messages would be more appropriate. This can cause problems when playing or sequencing with mulit-timbral instruments.]

Dear Transoniq Hacker,

Congratulations on your fine review of Valhala's ESQ-1 patches in your Sept. '87

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issue. I couldn't agree more with C. Barth's comments. I reviewed the cartridge (320 program) just after giving Eye and I's Voice Crystal 1 a listen. I was disappointed in the Valhala product, for the most part because they made it in ROM format, instead of the preferred EEPROM. You can't change these thin, weak sounding voices! Rumour has it that one guy does all the programming for Valhala, (Yamaha, Casio, etc.). Maybe that's why his ESQ voices sound like Casio's. I was especially impressed by the percussion sounds on the Voice Crystal 1. It's got a gated snare that sounds like it just hopped out of the latest Jam & Lewis hit.

I was wondering if there will be a review of the MIDI DRIVE, by IVM. I'd much rather buy a drive that uses the standard 3.5" disk than the Quick-Disk drive by Yamaha.

A question for the folks at Ensoniq: Besides cost-reduction efforts, was there any reason for the absence of a headphone jack on the ESQ-1? I've found that a pair of open-air headphones makes a good substitute, both monetarily and audibly, for a monitor while performing. The use of headphones also keeps parents happy when late-night hacking is a steady habit.

I am interested in forming an ESQ-1 user's group in the Metro-Detroit, southern Michigan area. Anyone interested?

Sincerely,
Scott Lake
2931 Pinto Dr.
Union Lake, MI 48085

[TH - We'll probably do some sort of review on the IVM drive - when we see one! They seem to be as hard to come by as the Quick disks. Regarding the Valhala patches - we're getting such a mixed response on calls from readers that it's sinking in, ever deeper, that audio evaluation is an incredibly subjective area (natch). The one thing we really can do to aid readers in choice making is to have our reviewers attempt, above all, to provide CONSISTENT standards with their evaluations. If they're consistently on the mark or consistently out in space, that's all you need. Some feedback on this?]

[Ensoniq's response - In our effort to produce what we at Ensoniq feel are instruments of un-matched quality of sound, features and dollar value, certain compromises are obviously necessary. We appreciate any and all input from our customers concerning current instrument features as this input plays an important role in the design and development of new products.

Many of the features on the new Ensoniq SQ-80 Cross Wave Synthesizer were included as a result of direct customer input. Among its other performance oriented features, the SQ-80 includes both a MIDI THRU port and a stereo headphone jack, two of the most-asked-for features on the ESQ-1.]

Dear Hacker,

I think the ESQ-1 is incredible, but have been experiencing a bit of a problem when mixing the final audio to a regular tape deck.

The mix plays back great through the ESQ-1 and monitoring through the speaker and phones while mastering to tape. The frequency response is excellent straight across the spectrum. Crisp highs, nice kick-butt lows, etc.

The problem comes when playing back the analog tape of the performance. The whole bottom end is gone! No kick-butt lows, just high end all over the place. I've tried to compensate for this by writing more bass into the parts and mixing it way up in the mix, as well as EQ in the mastering stage, but to no avail. The final analog result sounds flat.

Is this common when mastering digital to analog, and how have other owners of the ESQ-1 gotten around this problem?

Also, I'd like to trade patches via cassette with anyone reading the Hacker. I know there are plenty of you out there who can't afford a disk drive yet! Let's end trying to make money off one another and start trading those patches!

Sincerely,
Mark W. Curran
13120 Victory Blvd., #6
Van Nuys, CA

[Ensoniq's response - There should be no problem recording the ESQ-1 audio output accurately. Your problem sounds like it is unrelated to the instrument itself. If you are running the ESQ-1 in stereo, make sure you don't have any channel phase problems (i.e. make sure that both channels of your mixer are configured the same, with the left channel panned fully left and the right channel panned fully right).

In addition, make sure that the ESQ-1 output is not plugged into the MIC level input of the tape deck, as this will produce poor results. Finally, try monitoring the output of the tape deck rather than the ESQ-1. If the signal is good and clean at that point, then there may be a problem with the deck itself or another link the the recording chain.]

Dear TH,

Pardon me if this is an elementary question, but I am a guitarist whose

knowledge of synthesizers ended with the Mini-Moog. I purchased an older model Mirage and am disturbed by the "mushy" keyboard action. Can any modification correct this? Can the attack parameters be adjusted to improve it? Will controlling the Mirage with a different MIDI keyboard solve the problem?

Very truly yours,
Robert A. Pell
Brazil, Indiana

[Ensoniq's response - In late 1985, Ensoniq completely re-designed the Mirage to accommodate a new keyboard. This new keyboard will not fit into the original Mirage housing. While adjusting attack parameters will not affect the feel of the keyboard, using a different keyboard with a touch that you prefer as a MIDI controller is certainly an option.]

Dear Hacker,

Does the Hacker plan to review the multiple output modification for the Mirage offered by C.L. Brandin in the near future? Does Ensoniq have any comments on this modification (ie., does Ensoniq have any reservations on C.L. Brandin's modification as they did on Don Slepian's stereo modification?)

Thanks a lot for your answer and keep up the great newsletter.

Sincerely,
Steve Kranick
Loudonville, N.Y.

[TH - A review by the inimitable Don Slepian is in the works.]

[Ensoniq's response - Whenever we become aware of a third party product that requires some hardware-related interaction with our products, we make an immediate effort to contact that manufacturer. If a hardware modification is approved by Ensoniq, its installation by an Authorized Ensoniq Service Center will not void the warranty. The approval procedure is designed to maintain the integrity of our technical service programs and ultimately benefits all parties involved.

We have been in contact with Mr. Brandin and he said he would be glad to send us one of his 8-output Mirage modifications for approval. As soon as we have received it and have had a chance to evaluate the unit, we will notify the Hacker of the results.]

Dear Hackers,

Rick Hall performed beyond the call of duty in reviewing Monster Dan last month. The scope of this sequence publishing concept is difficult to perceive

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in its entirety without giving the subject a great deal of thought. He has done so. Rick's observations and accuracy of reporting detail have given the reader all the information that our potential clients usually have just before they start doing business with us. Our thanks for a job well done.

Nothing is perfect including the Monster Dan Plan, so, almost by definition, a good review has to inspire some comments from the reviewies. Here goes.

This probl m of data transfer is one of our biggest concerns. Most of our associates don't use the programs exactly as they come. Some folks only use data in the studio to produce audio back-up tapes for stage performance. Some customers are serious hackers and take advantage of the way our sequences are assembled by digesting the programs to suit their own performance needs. Parts are added/deleted, drum patterns off-loaded to external machines then edited and performed from there, track status changed to execute parts on various external synthesizers, etc. With the right approach it is possible to get a set's worth of data in your ESQ1 (it's tough). Quite a few bands are already using some other sequencer for which they have solved the data transfer problem. They transcribe the sequences to their format. Some bands have specifically purchased an ESQ1 so they could participate in the Monster Dan Plan and get the sequences loaded into their system. We do have those customers who don't have the time or desire to so anything but load data and play. They all have Mirages or Yamaha disk drives. We hope the IVM people have a better solution cooking. If anybody's thinking out there, the next generation of synth that we will be programming on won't have this problem!

If you don't yet quite perceive the whole picture - can't visualize the full scope of sequence publishing - the price of this product might seem somewhat prohibitive. For those that understand, after hearing the quality of our work, they can't believe we don't charge a lot more than we do. For $500 (fifty songs), you can buy enough material for an entire act. Anyone with the ability to compete in the Top 40 band business can, by asserting themselves, recap this investment in a month, a week, or even a night if we count New Year's Eve. The price is practically insignificant.

Rick's disappointment in our use of the "annoying REED sound and its various derivatives" is admirable. Having been a woodwind major in college, it's easy to be convinced that I won't ever write a sax patch on the ESQ that a professional would be happy with, so I have never tried. We use the reed sound or a derivative for sax parts or sometimes harmonica parts; but in the context of the sequence, it doesn't sound all that bad. Our philosophy on patch programming is that it has to make the sequence work reasonably well. Beyond that, we reserve the right to leave the really awesome patch programming to those folks who do it for a living. One intriguing factor of this whole concept is that, with a little effort, the user can edit these programs adding their own finishing touches. At that point, the final performance becomes partially their own creation and a commensurate sense of pride and accomplishment prevails in executing that performance. We always want to leave room for improvement.

About promoting original material... After countless years in the real life music business, having had our conceits constantly "meet swift and brutal rectification," we finally figured out that being monstrously talented has nothing to so with getting a record deal. No, luck has nothing to do with it either. What the record companies want is someone who can demonstrate they can so something with the talent they've got. I'm confident that if we already had a record deal we wouldn't be struggling to get a sequence publishing business started (not an easy task). The Monster Dan Plan fits neatly into an artist management scheme that will increase our odds of getting a record deal astronomically over anything else we've done so far. How else could we get our original music to the ears of the public with no production or distribution costs and still get all this free publicity included in the deal?

Rick says this stuff is going to have to be fabulous to get anyone to participate in this scenario. My highly biased opinion is that Dan Bergstrom is one of the most naturally gifted composers since Amadeus. For the record, that is why he is Monster Dan. Monster Dan is probably the greatest rock/rock-fusion lead guitar player that ever lived (remember my highly biased opinion). He's also a modest and humble sort of guy, so he's gonna kick my butt when he reads this. We put some of Dan's tunes on a cassette demo used to promote this business, and now a handful of bands across the country are using some of these originals in their acts. Some people have ordered every one of Dan's tunes on the sequence order blank and want to know when they can get more. About 50% of the people that check us out for the Top 40 program call back after hearing the demo, complimenting us for the original works. (Thanks - we get a lot of inspiration from your comments.)

For those of you already addicted to Monster Music, let me assure you - after several months of full-time programming, Dan's ear, imagination, and chops have never been any sharper. We

are finishing up the material for the second set of the Monster Dan Show, and there is LOTS more excitement forthcoming. Thanks for supporting Monster Dan.

Larry Church
Tualatin, OR

[TH - I'll bet Wolfie would be relieved to hear that HIS pre-eminent position hasn't been affected by the arrival of Dan.]

Dear TH -

Teddy Ruxpin is the subject of this letter, not synths. This is in response to Mr. Luckeroth's letter in the October issue of TH. I made a Teddy/Grubby control track encoder back in '85. My purpose, like his, was to make personalized tapes for my kids.

I do not have a sampled disk for this process. However, I can provide a schematic of the circuit. It would include instructions, a diagram, and a parts list. Radio Shack has everything to make the board. The cost of my instruction package, including a special notched cassette, is $7.50.

I am not suggesting anyone should make this circuit board with the intention of selling tapes commercially. However, it should prove to be exactly what is needed for personal use in the home.

I hope this letter will help other hobbyists like myself.

Sincerely,
Robert Houser
15182 Vermont St.
Westminster, CA 92683

[TH - Gawd, eventually there's an answer for everything.]

Dear Transoniq,

I know this has been addressed in the Hacker, but never to a helpful degree in my case. Where can I find detailed information on exactly HOW to move wavesamples on the Mirage? I have some that defy all directions, including those in the MASOS guide.

Thanks,
Mary Ann Harbar
Houston, TX

[Ensoniq's response - If both the Hacker articles on the subject and the MASOS guide do not suit your needs, we recommend that you contact one of the Transoniq Net participants for more information.]

[TH - Also, Jack Loesch is offering a service that does just that. See our classifieds.]

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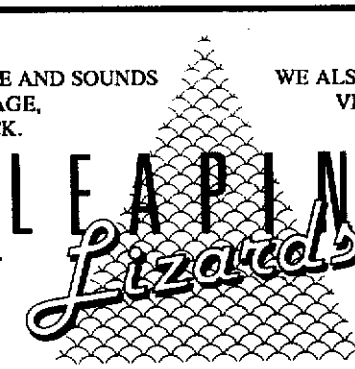

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Aloha,

Regarding the renewal form feedback section: it's hard to say whether tech, performance, or product reviews can even be rated according to importance. However, the most frustrating are the sound and sample reviews. Even with the best writing skills of the authors, describing sounds, is to me, like trying to describe smells.

My computer of choice is an Amiga. Low cost, multi-tasking, voice chip, and superior graphics are my reasons. There is a distressing lack of music software for the Amiga, and especially a lack in programming to take advantage of the unit's attributes. I'm hoping that mentioning it here would have a greater effect than trying to contact software developers individually.

Another mag (forever nameless) includes a record inside. A fanciful dream would be some future TH with a clever little insert as usable for my Mirage as the Hackerpatch patches are for my ESQ1.

I would like to see more written about how to use the ESQ1 and the Mirage with other devices. For example, after many months of trying, I still can't get my KX88 keyboard to do half the things with the Mirage and ESQ1 that I can with my FB-01. Obviously, I need to know more about MIDI parameters. (By the way, the KX88 "instruction" manual is no help at all. I would buy a good KX88 "how to" book in a nanosecond.)

Thanks for a good mag,
George R. Williams
Mountain View, HI

[TH - George, you might check out the letter from J H H Lowengard in this issue. To new readers who haven't had the opportunity yet to renew and send us more money and who might not know what survey is referred to here: our renewal form asks to rate in importance the three different areas mentioned above. So far, we've never seen anything come out so even.]

TH -

I feel I must respond to your seemingly favorable review of Kaleidasund, Inc. disks.

I ordered (pre-paid) their demo disk and was very disappointed. I found the sounds to be VERY obscure. They were of no use to me musically, consisting of strange orchestral hits that could only be used once or twice in a specific piece, then discarded. Their "Shaki-Haichi" sample was sort of interesting, but the quality was very poor, especially when compared to the identical sample offered by Livewire Audio. I really can't see how they seem to expect poor musicians (*ahem*) to cash out hundreds of dollars for their libraries on the basis of such a poorly prepared demo disk. Samples lacked loops, program variations, and demo sequences. I'm still burned about not getting any refund (or response) since I returned their disk, politely explaining its lack of value to me.

I feel the best way to weed through the growing jungle of non-Ensoniq libraries is by hearing a comprehensive demo tape such as Livewire offers. I can't tell much at all from a list of disk titles alone!

My advice: don't buy a pig in a poke. There are some worthy companies producing quality disks, but buyer beware. My income is not such that I can justify a blind investment (are you listening MUG?). I do welcome the outside interest, and offer thankful support - but, at twice the price of the Ensoniq disks, I must find the product useful. I hate to be negative, but until I hear something of value from Kaleidasund, I must advise caution.

Sincerely,
Pete Wacker
Phoenix, AZ

[Kaleidasund responds - We have returned Pete Wacker's full purchase

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price for the sample disk he sent back. We at Kaleidasund take pride in the great positive response we have had via calls and letters from Mirage owners. We are also very proud of the review we received on our Mirage samples in the October '87 issue of the Hacker. In final rebuttal, Kaleidasund disks are NOT "twice the price" of Ensoniq disks but range from $13.80 to $9.96 depending on library purchased. We are committed, as any good sound software company should be, to constant improvement of our products. We think we are a great buy for the Mirage owner.]

Dear Hacker,

In reference to a recent letter from Mr. Rose, it is clear he received a defective disk, and we have written him in order to facilitate replacement of the disk. As always, we are absolutely committed to customer satisfaction.

Our software is being used by thousands of music professionals worldwide and appears on numerous albums and movies, including the title song of the recent Mel Brooks movie "Space Balls", and Debbie Gibson's album and hit singles "Out of the Blue," "Only in my Dreams," and "Shake Your Love."

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Sincerely,
Norm Zarr
MIDImouse Music

Dear TH -

I'd like to invite Peter D. Gulch to stop polishing his TX81Z and read a few comments concerning his letter in the November, '87 issue of TH.

1. I often break one of the cardinal rules of the computer/synthesizer world and buy release 1.0. If a unit's specs appear to meet my needs I'm usually at the top of waiting list. In fact, I'm waiting on my SQ-80 and EPS right now.

2. Since my efforts with the TX81Z were way back in March of '87, I can't recall the exact details of the parameters except to assure him that EVERY combination was attempted with the assistance of Yamaha and Ensoniq.

3. I agree that the TX81Z sounds fine, but, at the time, my original calls to Jim Johnson were to help others avoid the frustration I had experienced.

4. You should bear in mind that people who stay on the bloody edge of technology help make life easier for those who hang back waiting for later updates to hardware and software.

Page Hite
Falls Church, VA

[TH - The first thing to check when a "This-doesn't-work"/"Yes-it-does" debate starts going is what version number we're all dealing with. THEN we're ready to move into the "Well-it-works-for-me"/"I've-tried-everything" stage.]

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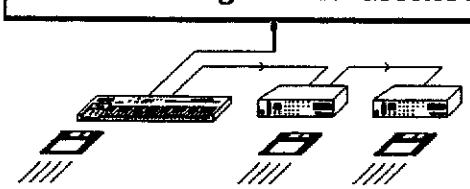

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