

TRANSONIQ HACKER

The Independent Ensoniq User's Newsletter

ESSENTIAL NONESSENTIALS FOR THE SAMPLER

BY CLARK SALISBURY

If your interest in the inner secrets of the Mirage begins to wane once you've learned to load disks and adjust the volume, this article won't be for you. If you've owned your Mirage for more than two hours and haven't tried doing a sample, turn the page. If you felt that you had all the information you needed once you had learned how to switch through the programs on the Mirage, go turn on the TV. You might be missing the Cosby show. It's after 8:30 - do you know where your owner's manual is?

This article is for those of us who bought the Mirage, not for the piano sound, but because it samples. It samples! Yes, I want to use the sound of a creaking door in a percussion track! Yes, I want to sample breaking glass! Yes, yes, oh god, yes, I want to recreate the 1812 Overture using various organic bodily sounds!

Well, if you've set out down that long, lonely corridor known as "user sampling", you may have discovered that there were one or two teeny weeny peripherals that might possibly make life a bit easier, analog-to-digital-wise. Make those samples a wee bit cleaner, make those parameters a teensy bit easier to comprehend. I know I have. So here is my list of the most desirable, and in some cases indispensable, sampling peripherals. (Some of this may be a review for those of you who have been with us for a while.)

Number one on my list is Ensoniq's own Advanced Samplers Guide, along with the MASOS disks. Originally, these items were sold as options, at a retail of \$49.95 for both the manual and the pair of MASOS disks. Later on, Ensoniq began including them with the Mirage. If you didn't get them with your original Mirage, clench your teeth and go buy them. Go back to the dealer you originally bought your Mirage from. He may take pity on you and give you a break on the price (tell him I said so).

The Advanced Sampler's Guide (or ASG) is indispensable for figuring out how to work the Mirage.

Everything not covered in the manual that came with the Mirage (the big print, words of two syllables or less, volume rather clumsily titled the "Musicians Manual", because everyone knows musicians are a singularly non-technical, non-verbal lot) is covered in the ASG. You'd have a heck of a time learning how to change split points by reading the Musician's Manual, for example. And even though some of the instructions in the ASG can be a bit mystifying, almost everything any sane person would need to know about the Mirage is contained within its pages. You just have to read it rather carefully at times. And of course you can always supplement your ASG studies with articles from the Hacker (ahem).

By the way, for those of you who are owners of the original ASG and MASOS, did you know that the current version of MASOS is 2.0? If you have an earlier version, go trade it in for the current version. Also, there are different versions of MASOS meant to work with specific Visual Editing Systems and personal computers. Don't try to use your regular MASOS with your VES if there is a different version of MASOS included with the VES program. The results may be unpredictable.

My second choice for indispensable peripheral is the Ensoniq Input Sampling Filter. The Input Sampling Filter (ISF) actually performs two functions. First, it provides a very steep rolloff of upper frequencies at the Mirage input, something like 84 db per octave. This can radically reduce the chance for aliasing of high frequency material, and you know how painful that can be. The ISF also allows you to turbo-charge your Mirage, letting you sample at rates up to 50 kHz. That's right, 50 kHz. Does it work? You bet! I wouldn't be without mine. The gain in clarity of samples makes it well worth the \$150 price tag.

The next most important peripheral, to my way of thinking, is some sort of equalizer. An equalizer is basically a sophisticated set of tone controls, and can be most useful for touching up the sound of your

samples before they get to the Mirage, reducing the amount of fussing you'll have to do with your amplifier's tone controls when playing back your samples.

Equalizers generally come in one of two basic varieties; graphic or parametric. A graphic EQ will generally have a number of sliders on it, anywhere from five to thirty-one. Each slider can be used to cut or boost the particular frequency that it is "tuned" to. In other words, if you want to brighten up a particular sound before sampling it, plug your graphic EQ in line between your sound source and your Mirage. Grab one of the sliders in the upper ranges of the equalizer, say at 10 kHz or so, and raise it. If you then sample the sound, the 10 kHz boost will be "built into" the sample. Of course, you can boost or cut any frequency available to you on the equalizer, so I tend to recommend equalizers with a fair number of bands; ten or fifteen at the minimum. The reason for this is that the more bands there are on a graphic EQ, the finer the divisions between the bands will be. A thirty-one band graphic EQ will generally allow you to deal with frequency bands as small as a third of an octave apart.

Parametric EQs are a little different. Instead of giving you a number of boost and cut controls at different frequencies, parametric EQs will typically give you three or four boost and cut controls, each of which can be manually tuned to the specific frequency you wish to deal with, along with a "Q" control which determines bandwidth (how many of the frequencies around the center frequency are also affected). Parametric EQs can be particularly good for picking out specific frequencies that may need attention in your pre-sampled material, but I generally prefer graphic EQs for their ability to deal with a greater number of different frequencies simultaneously. I do admit though that the choice of equalizers is somewhat a matter of personal preference; use whatever works best for you. An excellent source for tips on the use of equalizers can be found in Craig Anderton's article in the January issue of *Electronic Musician*. The orientation of the article is recording applications, but much of the information applies to sampling as well.

If you plan to sample acoustic sounds, a decent microphone is a must. An evaluation of all the different kinds of mics available is beyond the scope of this article, but a few general guidelines may prove helpful in evaluating mics in terms of your needs.

Before you go out shopping for a mic, ask yourself a couple of questions. First, of course, is what are you willing to spend for a decent mic? In my experience, professional mics are hard to come by for less than \$75 or so, and the best recording mics can set you back \$300 or more. Take heart, though. I've gotten excellent results using a mic that I found used for about \$90, so you don't necessarily need to spend a fortune to get results. Another consideration is the type of material you'll be sampling. Will you need a mic that is capable of producing good results with a number of different kinds of sounds, or do you need something that's optimized for specific types of sounds? For example, condenser type mics tend to be better for

more delicate sounds with lots of high frequency material, whereas dynamic mics are often the better choice for recording loud or punchy sounds. Another consideration is whether you'll be using your mic with a high impedance or a low impedance input. If you have a decent mixer, hopefully it will accept low impedance inputs. Virtually all professional quality mics will be low impedance, so if your mixer doesn't accept this type of input, or if you want to plug your mic directly into the Mirage, you'll need a transformer to change the low impedance signal from your mic to a high impedance signal. Transformers generally cost upwards of \$25, so you may need to take this into account.

As long as we're on the subject of mics and signal processing and such, there's a gadget that you die-hard sampling fanatics ought to check out, if you haven't already. Aphex makes a deal called the Aural Exciter, and DOD makes one called the Projector, and there may be others. What they do is use psycho-acoustic techniques to increase the apparent high frequencies in the input material, without actually increasing the high frequencies much at all. In other words, the sound seems brighter, but the actual amount of high frequency material added is fairly negligible. These devices actually do some other stuff to the input material as well, but the major benefit for sampling is that you can get brighter sounding samples with less risk of aliasing. Don't ask me how it's done - I'm not completely sure I could explain it - at least not in a reasonable amount of space. But it works, and it's cool. And it's not too terribly expensive. Either unit can be had for under about \$400, and they make a nice peripheral for any type of recording or sound reinforcement work, not just sampling.

The last peripheral on my list is a qualified suggestion. And that is the ubiquitous Visual Editing System. The qualification is that you need a computer to use a VES. But if you already have a computer, and a Mirage, how can you resist the possibilities of an all digital sound manipulation system? Even if you never do a sample of your own, a good VES can allow you to do some pretty interesting things with Mirage wavesamples, not to mention the fact that MASOS can become a much friendlier beast when you have some visual feedback on what's going on in the Mirage. As a matter of fact, the computer itself is a pretty strong contender on my list of stuff that's cool to use plugged into the Mirage. Why, there are programs that allow you to twist wavesamples into unimaginable shapes. Programs that do FM synthesis or additive synthesis on the Mirage. At least one program that I know of allows you to turn picture files into Mirage wavesamples. This stuff is great! This stuff can also be expensive, though, so be careful out there.

Anyway, that's my shopping list for the complete sampler. Do I personally use all this stuff? Well, yeah, but, hey - that's what checking accounts are for, right?

A LOOK AT JIM JOHNSON'S ESQND - A PATCH GENERATOR FOR THE ESQ-1 AND THE COMMODORE 64

By Erick Hailsone

To start off there are three things I like about this program: it's easy, it's not copy protected, and it's cheap.

Using this program is very simple. Once you load it you'll be asked which interface you are using. Passport and Sequential are supported. You're then asked what MIDI channel you're transmitting on. You then enable the system exclusive functions on the ESQ-1 and you're in business. Press any key on the computer and you will see the patch generator menu.

There are two types of patch generation: random and ordered. In the random mode things are wide open, that is almost anything can happen. Most often you'll end up with sound effect type noises. In this mode the chances of coming up with good melodic patches are understandably small.

In the ordered mode a degree of probability is introduced to insure that the sounds generated will be melodic in nature. This is not to say that every patch created is a gem. I sat down and used this program and found about every 40th patch interesting.

Using the program is quite simple. Set the ESQ-1's display to the patch display mode - 10 patch names will be shown. Press 1 on the computer for an ordered voice or 2 for random. When the ESQ receives the patch the WRITE page of the ESQ-1 will come up. Play the keyboard. If you like the sound save it in the ESQ-1's memory, if not, press exit and go again.

Again, this program is not copy-protected so you can make backup copies for yourself without going through a lot of time-consuming B.S. This leads to the last point; this program is cheap! When a program like this sells for \$20 even the most liquid set of scruples would have a twinge of guilt, copying and giving it away.

For an experienced programmer ESQRND is useful for the moments when inspiration just won't get you started or if you just need a new slant.

A second program was provided by Jim on the same disk - ESQLIST. Evidently, it's a public domain program that allows you to send patch information from the ESQ to your computer and then print it out. This also is a very simple program to use and works flawlessly. It's great to get a readout of this information so you can make comparisons or hand data out in an easy format.

BACK ISSUES

Back issues are \$2 each. Issues 1 through 8 and number 11 are no longer available. ESQ-1 coverage started with Issue number 13.

Technical Information ESQ-1 Inputs and Outputs

Technical Release from Ensoniq

Sustain Footswitch: 2-conductor, normally-open switch (Tip=input, Sleeve=ground). The input is a 3.3k ohm resistor to +5 Volts which can be mechanically switched to ground, or driven by a TTL signal referenced to ground (low active).

Sequencer Footswitch: Same as above.

Tape In: 2-conductor (Tip=input, Sleeve=ground). 10 KOhm input impedance, AC-coupled. Triggers from 500 mV p-p up to 5 V p-p, AC or DC coupled. 500 Hz maximum reponse for sync.

Tape Out: 2-conductor (Tip=output, Sleeve=ground). 22k ohm output impedance, AC-coupled. Drives 1 V p-p into 10k ohms (line level) down to 100 mV p-p into 1k ohm (mic level).

CV/Pedal: 3-conductor (Tip=control voltage input, Ring=2k ohm resistor to +12 Volts, Sleeve=ground). 500k ohm input impedance, DC-coupled. Input voltage range=0 to 10 Volts DC. Scan rate=5 ms (maximum recommended modulation input=25 Hz). For use with an external control voltage, use a 2-conductor cable with the voltage on the Tip and the Sleeve grounded. For use with a potentiometer, use a 3-conductor cable and a 10k ohm linear pot. Attach the Ring to one end of the pot, attach the Sleeve to the other end of the pot and attach the Tip to the wiper of the pot.

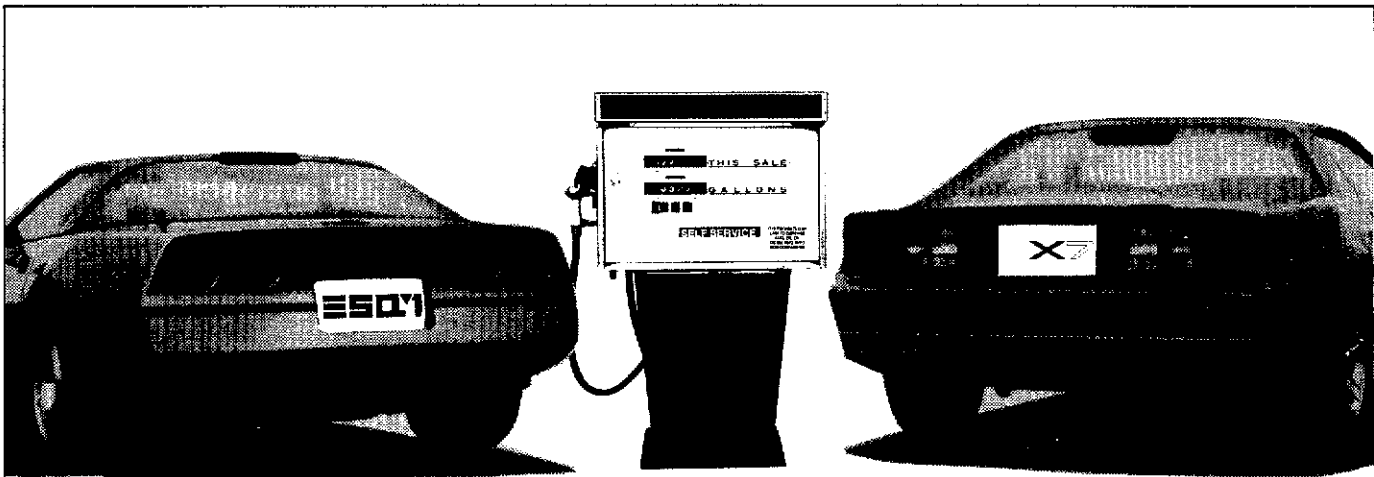
Audio Outputs (L/MONO and R): 2-conductor (Tip=output, Sleeve=ground). 1k ohm output impedance, DC-coupled. Line level output into 10k ohms or higher (one voice=1 V p-p typical, all voices=15 V p-p max).

Sequencer Expander: This connector is exclusively used for connecting the ENSONIQ SQX-10 Sequencer Expander Cartridge. No other devices should be plugged into this port! This port accesses the unbuffered internal busses of the ESQ-1. Loss of internal memory and/or serious internal damage can occur if any unauthorized devices are attached! Power at this port is sufficient for a single SQX-10 only.

Program Cartridge: This connector is exclusively used for connecting the ENSONIQ STC-8 Program Storage Cartridges. No other devices should be plugged into this port! Power at this port is sufficient for a single STC-8 only.

CHANGE OF ADDRESS

Please let us know at least four weeks in advance to avoid missing any issues. The Post Office will not reliably forward this type of mail. 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!)



The Drive to Center Stage Just Got Easier.

**Valhala's Sound Products are the musician's fuel,
a means of expression as vital as the instrument itself.**

At Valhala, we feel if you don't get there, neither do we.

ES1 LIBRARIAN \$99.95

The ultimate storage program for your patches and sequences. Simultaneously holds all of sequence memory and two banks of 80 voices in computer memory for instant access, or simultaneous access of up to ten banks of voices (400 voices) at one time. Supports the swapping of sounds between banks. Permits single/bulk sends and receives. Stores up to 1560 voices per diskette (39 banks). Written in 100% machine language. Commodore 64/128 with 1541/1571 disk drive and Passport/Sequential or compatible interface.

ESQ-1 VOICE CARTRIDGES

80 Voice ROM Cartridges \$59.95

Four different 80 voice ROM cartridges are available at \$59.95 per cartridge. ROM 801 thru ROM 804.

160 Voice ROM Cartridges

\$116.95 per cartridge

Two different 160 voice ROM cartridges featuring electronic switching of banks with visual indication

by LED's. ROM 1601 contains the same voices as in ROM 801 and 802, likewise ROM 1602 contains the same voices as ROM 803 and 804.

ES1-A/B/C/D \$39.95 per volume

Four volumes of original and expressive voices for the ESQ-1, Synthesizer. Requires Valhala's ES1 Librarian Program. Each disk contains 80 professionally programmed voices as featured in our ROM cartridges.

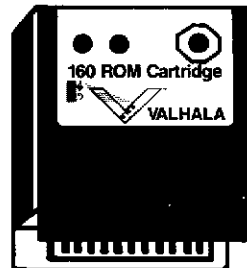
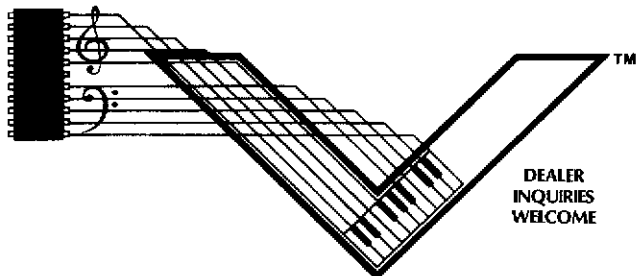
ESQ-1 DATA CASSETTES \$19.95 per volume

Eight volumes of expressive and original voices for the ESQ-1 on data cassette. Each volume contains 40 different voices as featured in our ROM cartridges.

All ESQ-1 voices professionally programmed by Rich Rozmarniewicz which includes Top 40, analog, DX sounds, strings, bass, woodwinds, brass, bells, percussive, pianos, voices, effects and more.

If not available at your local music store, please order direct. Valhala Music, Inc. • Box 20157-TH • Ferndale, MI 48220 • (313) 548-9360 ext. 506.

*ESQ-1 is a trademark of Ensoniq, Inc.



Continental USA add \$3.00 Shipping/Handling. Michigan residents add 4% sales tax. Canada, Alaska, Hawaii add \$7.50 S/H for surface; \$12.00 for airmail. All other countries \$10.00 S/H for surface; \$15.00 for airmail plus \$3.00 for each additional article. DX7/TX7 Demo tape: USA \$7.50 p/p Foreign \$10.00 p/p. All payments must be in U.S. Funds. Prices/Specifications subject to change without notice. VISA/MC orders less than \$15.00 add \$1.00 service fee.

ALL ORDERS PROCESSED SAME DAY

THE SLEPIAN STEREO MIRAGE MOD - A REVIEW

By Larry Church

[ED. NOTE: This article assumes that you've read "The Stereo Mirage" by Don Slepian in the January, 1987 issue of ELECTRONIC MUSICIAN. Further information on this mod is also presented in another review, the INTERFACE, and "The Quiet Revolution" by Don Slepian elsewhere in this issue.]

We knew that most of you hackers out there would be intrigued by Don Slepian's "Quiet Stereo Mirage" mod. We have performed this modification on a rack Mirage and, in addition to providing information that may help you to decide whether or not you want to chop on your own rig, we have a couple of other observations for you to think about.

Don Slepian has a follow-up article coming in the Feb. issue of EM. Two items contained therein should be mentioned. First, he revises the claimed noise reduction figure from 6 dB to "no less than 13 dB." Second, he has a new approach to installing the mod. I would certainly recommend this new approach (with perhaps a slight change - see below).

Included in the "Stereo Mirage Mod" article is a fairly strong warning about proceeding with caution. Mostly he is saying, "Don't blame me if something goes wrong." I myself have some fairly intense feelings about who should or shouldn't be soldering on the main board in the Mirage - in Oregon, I'm the guy that has to fix it.

This is probably a good chance to explain something about about Ensoniq's service policies. The factory strictly supports a module exchange program for both in- and out-of-warranty repairs. What this means is that the field tech (like me) doesn't need to troubleshoot a problem to the component level - only to a module (main board, disk drive, power supply, etc.). Even if the tech is capable of fixing the problem (instead of sending it back to Ensoniq) we are discouraged from doing so. Service manuals have no schematics, esoteric parts are not available, and telephone assistance at the component level doesn't happen. One could get the idea that Ensoniq doesn't want even professionals soldering on their boards. In addition to illustrating the high level of discouragement towards messing around inside your Mirage, this also points out that you're going to be stuck with a main board exchange charge (a fairly hefty repair bill) if you mess it up.

If your technical skills qualify you to be the person in the band who fixes cables when the need arises this doesn't necessarily mean that you should heat up the gun and go to work on the sampler. There really is a lot to the skill of printed circuit board (PCB) work, and nobody gets good at it without making a few messes. However, if you have had any significant hands-on

experience working with PCB's, I wouldn't hesitate to dive in - the mod is a fairly easy one. I'm assuming you already know about solder splashes and bridges, destroying resistors, lifting pads off the board, blowing chips with too much heat, "invisible" hair-line shorts, removing flux, etc.

Following the revised procedure is really the way to go. All of the work is done from the top of the board so you don't have to remove it from the chassis.

In the original instructions, we're supposed to "isolate the signals with a bit of resistance," - 10k is suggested. The revised instructions take the signal from the chip side of the output summing node resistors, leaving only the coupling capacitors for isolation at this point. I think we're still supposed to have our two phone jacks with the 10k resistor assemblies waiting to solder the wires to - but he doesn't say anything about that in the copy I have.

What worked better for me was to solder the 10k resistors to the summing node resistors (R126, R133, R140, R147, etc.). Cut the leads on both ends of the 10k resistors to about 3/8", bend a small hook in one end and hook it around the lead of the summing node resistor. With the resistor standing vertical (perpendicular to the PCB), pinch the hook tight with needle-nose pliers to form a good mechanical connection and then solder it up. This is where a little practice is nice.

Next, take a 6" to 8" piece of wire (I prefer 18 or 20 gauge, stranded and pretinned), and strip off the insulation. Use this to "buss" together the other ends of the first four resistors while leaving enough wire at the back to reach the new output jacks. Do the same thing for the other voices in the second row. For more professional results, use a small piece of heat-shrink tubing between each connection although, it can be left bare. Now there are only two wires to deal with instead of eight (this method won't work if you're doing the eight-out version). Fortunately, a parallel connection is a parallel connection no matter which end of the wire you put it on. To fully appreciate this, go ahead and try the other way first - you won't like it.

Now we've got two wires that need to connect to phone jacks mounted, but not electrically connected, to the back panel. Use insulated jacks, period. They aren't that hard to find. Any Switchcraft dealer should have some. If not, they can certainly get them. When I got to this point, I found some PCB-mount type similar to the ones soldered to the board on the Mirage (Audio In/Out). They worked just fine.

Here's another good place to make a mistake. Pay very

close attention to what's happening with the metal flakes when you drill the mounting holes. Since we haven't removed the circuit board, it's impossible not to get filings in the circuit unless you do something to prevent it. I have a powerful central vacuum system with a connection right near my bench. With the nozzle practically touching the drill bit, the flakes don't have a chance to cause a problem. For best results, I recommend drilling a small hole and then using a 3/8" knockout punch for the final hole.

What about Don's other solutions to the connector problem? No one should carve holes in the chassis without a pretty good reason. And loose wires with cable-end connectors coming out the back or top is not a road-worthy approach. Also, with the above method, if the main board ever needs to come out, you can dismount the phone jacks from the chassis and the mod remains assembled.

Now for the "smoke test"that's such a great term. Hope you don't find out first hand where it came from!

Was it all worth it? Well, my ears aren't too great (too much rock and roll), so I use test equipment to verify that what I think I hear has some accuracy. What I found was very little, if any, measurable or audible noise reduction. I'm not alone on this. Transoniq Hacker's Erick Hailstone owns the unit that I performed the mod on. Here's a guy with intimate familiarity with the device - claims to have a "mechanically superior, well-trained ear" - and after having a couple of weeks to A/B the outputs, he says the same thing.

It was difficult with my test set-up to achieve scientifically reliable results. First, I sampled sine waves at various frequencies. I settled on 200 Hz to get serious with. I looped the sample and defeated any output processing (open the filter and VCA, etc.). The output was fed to a Hewlett Packard 339A distortion measurement set. When the sample was played back at the original frequency, the THD+noise settled in at about 0.5%. So far, so good. But the filtering on the 339A isn't adequate to separate the noise component from the distortion. Looking at the error output on a scope was interesting but inconclusive.

Next, I tried looking at the signal on a real-time analyzer. This measurement showed maybe a dB or two difference around 10 kHz. My analyzer really wasn't designed for these kinds of measurements though, and in order to get the signal at that frequency in the display window, I had to reduce the sensitivity to 3 dB/step. Still, if there was anywhere near 13 dB reduction, I should have seen more significant evidence even at that setting.

Erick and I both agree that there seems to be a slight, but noticeable, improvement in clarity, presence, reduced IM distortion - or some quality difficult to identify in so many words. Whatever it is, it's disappointingly less significant than the article led us to believe.

The stereo outputs provide some interesting diversions. Unfortunately, the user has absolutely no control over

the left/right destiny of the music. I find that nice for an occasional effect, but distracting when too much of the music is unpredictably bouncing back and forth all the time.

If you do any sampling, you'll appreciate being able to monitor the signal directly from the new outputs. If you have a bare-bones kind of set-up where you are sampling (only one input on your monitor rig - no mixer), it might be worth doing the mod just for this reason. You would want to put a shorting switch between the two jacks to make it mono again (or just use one jack for all eight voice).

I must admit to not knowing anything about Don Slepian. His writing gives me the impression that he's a knowledgeable, very credible fellow, who wouldn't say how great this mod is without having the evidence - but I couldn't find it in my set-up.

We have recently received a report from an associate who installed the mod in an older unit and was quite impressed with the results. We haven't had an opportunity to compare notes yet (holidays and all). Perhaps we've missed something. It is very easy to be fooled - electrons being the tricky devils that they are.

If you are tempted to do this mod just to have something to work on, you might wait and check out Don's next project. A foot controller for disk functions sounds like a great idea. Should be a good challenge.

MIRAGE-NET

A subsection of the MacMusic Bulletin Board

As a subscriber, you can download hundreds of samples 24 Hours a day over the phone lines to your computer, and with a flat, \$25 yearly membership fee, you'll never have to buy another Sound Disk ever again!

- Over 500 Sound Designer™ files from some of the best sample libraries in the world
- "Sample Du Jour" file area gives you a different set of Sound Designer™ files every day of the week!
- Online support for Sound Designer™, Sound Lab™, and Mirage questions
- 120 Sound Lab™ Soundfiles
- 195 raw wavedata samples for use with free wavedata loading programs for the C-64/128, Apple II, or Mac
- ESQ-1 File areas
- Public Message Forums where you can exchange ideas/information with other Ensoniq owners
- 300/1200/2400 Baud, 24 Hours/Day

With a computer and a modem, Dial

(503) 646-2095

Or (503) 274-2755

If you believe that putting 9 Mirages into one box is a good idea,
then you will be happy to know that

from  to 

the IVM MegaBank™ expander

...gives you more banks for the buck !!

- **ADDS ONE MEGABYTE OF RAM**
or 8 Upper and 8 Lower sound banks to the existing Mirage memory for an amazing total of 9 full keyboards of sound.
- **INCLUDES** built-in Sequencer Expander Memory for up to 1333 event sequences.
- **INCLUDES** external power supply to prevent overloading Mirage power supply.
- **COMPATIBLE** with all versions of Mirage Digital Sampling Keyboard and Digital Multi-Sampler hardware.
- **COMPATIBLE** with all factory-approved operating systems, including MASOS.
- **DOES NOT VOID** ENSONIQ factory warranty (if installed by IVM or an authorized service facility).
- **SOFTWARE FEATURES:**
 - Easy Loading command which loads 3 banks (an entire sound diskette) at once.
 - Receives MIDI program changes to select banks and programs.
 - Remembers program and keyboard half selected for each bank.
 - Provides instant access to all 9 banks from the Mirage keypad.
 - Free updates to registered owners !
- **ONE YEAR LIMITED WARRANTY**
- **AVAILABLE NOW !**
 - From local authorized dealers or direct.
 - Suggested retail price **\$399.95 installed.**
 - Payment - COD, VISA, and MasterCard are accepted.

To place your order,
or for more information about
our products or dealers in your area
call or write:

Indian Valley Manufacturing

69 Madison Avenue
Telford, PA 18969

(215) 723 - 3210

Watch for exciting new products in the near future !!

Copies of our limited warranty policy are available on request. Mirage™ and Multisampler™ are trademarks of ENSONIQ™

MICROTONAL TUNINGS ON THE ESQ-1 SYNTHESIZER

By Sam S. Mims

With the versatile modulation routings available on the ESQ-1 synthesizer, it is possible to achieve effects not normally possible on most synthesizers. One such effect is to change the scaling of the keyboard, so that instead of playing a normal scale, the keyboard will play a microtonal scale. The same effect can be achieved on analog synthesizers by readjusting the actual circuitry - there could be a trim pot that does this - and on digital synthesizers by modifying the operating software, but on the ESQ-1, this can be a programmed parameter.

On the ESQ-1, microtonal tunings are achieved by routing the KBD and/or KBD 2 modulators to operate on the oscillators. This keyboard scaling will then, if applied in a positive amount, increase the frequency of the oscillators, with the amount of increase proportional to how high up the keyboard the note is. In other words, if you play notes C2 and C3 on the keyboard, the actual pitches played may be C2 and E3. Negative values of KBD applied to the oscillators will "stretch" the octaves, causing, for instance, half-tone key intervals to actually play quarter-tone sounds.

Through experimentation, I came up with values that would scale the keyboard such that an octave of actual pitch could be played with keyboard intervals of varying degrees (See Table). For example, to play an octave with only a 6-half step interval on the keyboard (i.e. C to F#), I set one modulator on the oscillators to KBD 2 with an amount of +63, and the other modulator to KBD with an amount of +03.

I found it easiest to experiment by using the "BASIC" patch, a factory internal sound which uses only OSC 1. I changed the waveform from a saw tooth to a sine wave, and set the modulators to various combinations of KBD and KBD 2. A chromatic tuner was used to find the most accurate values for the listed tunings. In some cases, only one modulator was needed to get a correct tuning, but usually I would "get in the ballpark" with KBD and then fine-tune by changing KBD 2 an increment at a time. If this didn't zero in on the tuning, I would then change KBD by one increment, and repeat the search with KBD 2.

Note that several combinations of values for the modulators will yield the same tuning result, and some are more in tune than others. So you may, through diligent searching, find better values than those listed in the table. Also remember that the pitches of notes will be quite strange - middle C may end up sounding like a flat G# two octaves below normal! Finally, the tunings in the table are not the limits of the ESQ's tuning range - values can be found for tuning 20 half-steps (on the keyboard) to an octave (in pitch) and beyond.

I uncovered several quirks during this experimenting that I am still puzzled by. The KBD and KBD 2 functions are both linear (see pages 34 and 35 of the ESQ-1 manual), and are generated digitally - I assume. However, I found that tunings were not perfectly constant across the keyboard. To check this, I set a random tuning that played a slightly-sharp octave on a 10-half-step keyboard interval. I then measured the "degree of sharpness" all the way up the keyboard. Instead of being constant, successive 10-note intervals gave readings of 30, 32, 35, 32, 31, and 33 cents sharp from the bottom C1 to the top C6 of the keyboard. I would be interested to hear if others encounter this same problem. My software is version 2.0.

Another odd quirk was found when I attempted to scale the keyboard to the extreme where every note would play the same pitch. By setting KBD 2 to -49 and KBD to -63, the bottom and top notes of the keyboard were indeed playing the same pitch. But the second note from the top was a half step flat! As I played up the keyboard from the bottom, each note was very slightly flatter than the previous note, until I got to the top note which jumped up to the "correct" tuning. This one baffles me as well.

An interesting application of this concept is that the keyboard can be reversed - almost. By setting both modulators to KBD 2 with values of -63, playing up the keyboard plays down in pitch. Unfortunately, the tuning is not quite extreme enough to get perfectly tuned octaves, but it's somewhat close.

In summary, the ESQ-1 can be set for microtonal scales that are very close (if not perfect) in tuning. These tunings can be saved as a regular patch and instantly recalled. For composers and performers of experimental music, this could be very inviting. I'm not sure that I'll be playing microtonal music every day, but it's nice to know just what this little machine can do.

TABLE OF MICROTONAL TUNINGS

TUNING*	MOD 1	AMT	MOD 2	AMT	REMARKS
6	KBD 2	+63	KBD	+03	
7	KBD 2	+43	KBD	+11	
8	KBD 2	+17	KBD	+60	
9	KBD 2	+37	KBD	-63	
10	OFF	-	KBD	+51	
11	OFF	-	KBD	+23	
12	OFF	-	OFF	-	Normal scale
13	KBD 2	+02	KBD	-28	
14	KBD 2	+04	KBD	-53	
15	OFF	-	KBD	-51	
16	KBD	-01	KBD	-63	
17	KBD	-14	KBD	-61	
18	KBD	-24	KBD	-61	
19	KBD 2	-10	KBD	-54	
24	KBD	-63	KBD	-63	Quarter tones
0	KBD 2	-49	KBD	-63	All notes at same pitch; see text
-12	KBD 2	-63	KBD 2	-63	Reverse scale

* this is the number of half-steps on the keyboard that will play an octave in pitch.

Author's bio: Sam Mims is a performing musician (both original music and Top 40), and owner of Syntaur Productions, a company that has produced music for TV and radio commercials, planetarium shows, and films. He plans to market synth patches for the ESQ-1, and Mirage samples.

Stereo Mod - ANOTHER Review

By Joseph Palmer

I've just completed the stereo mod to the Mirage as described by Don Slepian in the January 1987 ELECTRONIC MUSICIAN.

The results were quite good. I have an older Mirage that did not have the -12 dB mod installed, and the noise difference was striking. The noise in stereo signal was far lower than the noise in the standard output. I did notice a very low level tone coming out of the stereo outputs, and this tone would change pitch if keys were pressed. I suspect what's happening is that I am picking up the keyboard being scanned. This tone can also be heard in the standard output, though the noise very nearly masks it. I don't have a rackmount, so I'm not sure if this tone would even be there (no Keyboard, no scanning noise). Also the PCB has been re-layed out on newer machines, and the tone may not be audible. I then installed the -12dB mod (.0047 Caps across R67 and R69). The standard output got a bit quieter, but stereo outputs still had far less noise.

As for the stereo effect, the voice allocation algorithm tends to re-use voices for the same notes, so notes tend to stay put. I often find all of the notes to a chord bunched up on the same channel, and musical phrases are often broken up by having one note of a sequence jump to the other channel. As a dry effect, the "stereo" allocation of sounds is not very musically interesting. It does sound good with some of the novelty sounds, you can get a good gun battle going with a ricochet sound, and the swamp sounds sample I have sounds great with frogs and bugs coming randomly from the left and right.

All is not lost, there is still some hope for the stereo outputs. The best setup I've found to date is to take the two outputs into a mixer and mix one channel about 80% right and the other 80% left. I then take a mono send to a stereo effects unit (Yamaha SPX90) and bring the stereo outputs back into the mix. The effects box adds enough "stuff" to the sound to mask the lack of motion of the dry signals.

Never content to just follow the directions, I used a DB-25 type connector, (common in the computer industry), and brought out all 8 outputs, power and ground. I cut a 1" by 2.5" rectangular hole in the back of the cover and mounted the connector in a piece of P.C. board and mounted the P.C. board inside the cover. This was very time consuming and I took about four hours to disassemble the unit, drill out the rivets to remove the cover, mod the cover, and build the mod into the Mirage. I did all of the wiring internal to the Mirage with some very tiny coaxial cable.

I then built a tiny active mixer for each of the stereo channels, which plugs externally into the DB-25, the same way the sequencer expander plugs in. I used the NE5534 dual op amp for amplification, which is a very low noise device, and although there are quieter ones available, it does a good job, and anyway, I had one around.

I think all of this extra work will pay off in the endless possibilities presented by having 8 separate outputs. I have an 8-channel pan box in mind, although it would be easy enough to build any of a million octal effects boxes. My connector pin out is as follows:

Shell: Signal Ground*	Pin 8 -15V
Pin 1 Signal Ground*	Pin 9 Signal E
Pin 2 Signal A	Pin 10 Signal F
Pin 3 Signal B	Pin 11 Signal G
Pin 4 Signal C	Pin 12 Signal H
Pin 5 Signal D	Pin 13 Signal Ground*
Pin 6 +15V	Pins 14-25 Reserved
Pin 7 Analog Ground	

* From top of 1/4" output connector

PERFORMANCE SOUNDS, SAMPLES, SOFTWARE

Programming Mastery
Sampling Perfection

THE SuperSONICS™ VOYAGE HAS BEGUN!

POWERFUL NEW BREAKTHROUGH
ACHIEVEMENT IN STATE OF THE ART
PROGRAMMING AND SAMPLING
ACKNOWLEDGED BY WORLD-CLASS
MUSIC PROFESSIONALS.

SONIC HORIZON™ SOUNDS

CASIO

CZ-101 • 1000 • 3000 • 5000 • CZ-1

• CZ SOUND COLLECTION SERIES:
Volume 1, 2, 3, 4

• DATA SHEETS OR DISK (C-64, 128 & Dr. T's,
CZ Rider, Passport librarians, Atari ST & Dr. T's,
CZ Droid)

40 sounds/volume. \$19.95 ea.

• 64 VOICE RAM: Finest Lithium battery cartridge.
Cartridge #1, #2: 64 Pro-sounds in each.
\$69.95 ea. Blank 64 RAM cart. \$48.95

ENSONIQ ESQ-1

• CASSETTE OR DATA SHEETS:
Volume 1: 40 sounds \$24.95

YAMAHA DX-100 • 27 • 21

• DATA SHEETS, CASSETTE, OR DISK (C-64, 128
& Dr. T's DX-100 librarian)

• Volume 1, 2: 48 sounds/volume. \$24.95 ea.

DX-7 • TX-7 • TX-816

• PRO-SAMPLER DATA SHEETS
32 sounds: \$24.95

• SET 1: SONIC VOYAGE™: 128 sounds
SET 2: DX JOURNEY™: 128 sounds
ROM CARTRIDGE: \$99.95 ea.

DISK (C-64, 128 & Dr. T's, Passport DX librarian,
or Apple IIe & Passport, DX Pro, DX Heaven,
Data 7 librarians) OR CASSETTE (TX): \$59.95 ea.

KORG POLY-800 • EX-800

• DATA SHEETS OR CASSETTE Volume 1:
64 sounds. \$24.95

ROLAND ALPHA JUNO 1-2

• DATA SHEETS OR CASSETTE (JUNO 1)
Volume 1, 2: 64 sounds/volume \$24.95 ea.

SEQUENTIAL SIX TRACK

• DATA SHEETS: 32 sounds \$24.95

TR-505 & TR-707 DRUM

• DATA CASSETTES \$19.95 ea.

Vol. 1: Best Mix Vol. 4: Top Hot Rock
Vol. 2: Funk & Fusion Vol. 5: Jazz, Swing,
Vol. 3: Techno-Pop & Bebop, Blues
Electro-Dance Vol. 6: Latin

DIGITAL HORIZON™ SAMPLES

PROPHET 2000 • EMULATOR II EMAX • MIRAGE • AKAI S900

• COLLECTION #1: PREMIERE

#1 Piano	#6 Anthology
#2 Bass	#7 Composer's Tool Kit
#3 Master Strings	#8 Drum Kit
#4 Brass	#9 Percussion
#5 Orchestra Classics	#10 Cosmos
\$25.00 ea. Disk	\$199.95 10 Disk Set

NEW! SAMPLES OF THE MONTH™

• KORG DSS-1, ROLAND S-50 Available Soon!
• Digidesign Sound Designer and Softsynth—
call or write.

DIGITAL SAMPLING SOUND CASSETTE

• For any sampler: Mirage, Akai S612, Yamaha
VSS-100, Casio SK-1, RZ-1, Korg SDD-2000, etc.
• #1 SYNTHESIZER COMPLETE. 125 Dynamic
synthesized sounds.
• #2 STUDIO MASTER. Multi-sampled acoustic pro-
sound library.
Cassettes (chrome) \$24.95 ea.

• Demo tapes available: \$5.00 ea.
CZ series, DX-100 series, DX-7 series, Juno
(incl. sample patches).
Emulator II, Prophet 2000, Mirage

• Write or call:
Complete sound lists, information (specify
item). Software catalog for all computers.

• Shipping:
U.S. & Can: \$3.00.
Demo cassettes ea. \$5.00 (post. included)
Foreign orders: \$8.00.
Demo cassettes ea. \$8.00 (post. included)
• Order by check or M.O. (faster)
Call for C.O.D.

Dealer Inquiries Welcome!



MIDI MOUSE™ Music
Box 272-R
Rhododendron, OR 97049
(503) 622-5451

NEW! EMAX, ESQ-1, FB-01

RND (🎵🎶)

We actually got the page-composition software that we've been waiting for - about 3 days before paste-up for this issue. We're going to try to get as much material as possible run off using the laser printer, but this issue will probably be a little mixed, graphically speaking. Look for further improvements in the future. The proportional spacing and wide variety of type sizes lets us get a lot more material in a smaller space. The Classifieds now only takes up one page instead of two, six pages of letters have been cut down to four. Our page count this issue will probably be around 20 - but we've got approximately the same amount of material as last month's 28-page issue. (Or, for the cynics out there, last month's issue was really about 19 pages.) Yet everything is more readable and easier to find. We also managed to get our snazzy new logo into the program - the soon-to-be-famous looped digitized sinewave. Remember, you saw it here first. T-shirts??...

For the big news about January's NAMM show and Ensoniq, see our "Hypersoniq" section.

The first two reprints in our "Quick and Dirty Reprint Series" are now available: MIRAGE OPERATIONS, for \$5.00, and SAMPLE REVIEWS, for \$4.00. Each contains material from the first 17 issues on its respective subject.

TRANSONIQ-NET

The following people or organizations have agreed to help with questions:

ESQ-1 QUESTIONS - Tom McCaffrey, Philadelphia ESQ-1 User's Group. (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).

MOVING SAMPLES - all over the place. Jack Loesch, (201) 264-3512. Eastern Time (N.J.). Call after 6:00 P.M.

MIDI USERS - Eric Baragar, Canadian MIDI Users Group, (613) 962-0549. Business hours, Eastern Time (Toronto, ONT).

MIRAGE COMPUTER BULLETIN BOARD - Provided by John Connolly of Portland, Oregon for information exchange and file transfer. Phone (voice): 503-641-6260. Phone (BBS/computer): 503-646-2095. Free messages & e-mail to the Hacker. Yearly membership for upload/download: \$25.

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

MIDI & SEQUENCING - Leslie Fradkin or Elizabeth Rose, MIDI-MAX Studios. Eastern Time (NY). Calls between 10 am and 9 pm. (212) 628-5551.

MIDI & SEQUENCING - Markus McDowell. Any ol' time. (805) 987-9932 (Calif.)

MIRAGE HARDWARE & FIRMWARE - Scott D. Willingham. Pacific Time (CA). Days. (213) 938-6956.

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

MASOS - Pete Wacker. Mountain Time (AZ). 3 pm to 9 pm. (602) 937-1177.

SOFTWARE - Paul Braun. (805) 583-5315.

HYPERSOINQ NEW PRODUCT RELEASES

Probably the biggest news for Ensoniq watchers is the new Mirage being unveiled at NAMM. Even though the demand is at an all-time high, Ensoniq is aggressively making improvements and dropping the price. The new Mirage has the same memory and OS as the old Mirage, but it now has stereo outputs and a new case design. The

package now includes a formatting disk that allows you to install Operating System 3.2 on blank disks. The sequencer expander port has also been eliminated. The price is being dropped from \$1695 to \$1295! The price of the Multisampler is also being lowered - from \$1395 to \$1195. The price of sound disks is also falling. From now on, sound disks will be sold in packages of 10 for \$59.95. (The old price was \$20 per disk.) The sounds on the various disks are being reshuffled to make up the new Sound Library packages.

Also being introduced at NAMM by Ensoniq: two new rack instruments. (Guess what they are.) A rack version of the ESQ-1 (ESQ-M) for \$1095, and a rack Ensoniq Piano for \$895. In order for the ESQ to fit into a rack, the sequencer had to be dropped and the display made smaller (16 characters). The ESQ-M is configured to give you 16-voice capability when used with the ESQ-1. All other sounds and capabilities are the same. We'll try to have more info after NAMM.

* * *

ENSONIQ Corp has authorized Indian Valley Manufacturing (IVM) of Telford, PA to offer support to third party developers of ENSONIQ equipment. IVM now offers items for the Mirage and the ESQ-1.

MIRAGE: IVM is licensed from ENSONIQ to copy sound disks with the current version of the Mirage Operating System. This will not violate the ENSONIQ copyright.

ESQ-1: IVM will create non-eraseable sound cartridges based on a master cartridge. These cartridges use an EPROM, as compared to the EEPROM in the STC-8 cartridge offered by ENSONIQ. While this does not allow the user to write over a program, the EPROM cartridges offer significant cost savings over EEPROM-based cartridges. IVM will also publish ESQ-1 sounds presented by outside sound developers.

For more information on these services contact: David Ziembicki, IVM Manufacturing, 69 Madison Ave., Telford, PA 18969. 215-723-3210

• COPY ANY MIRAGE OPERATING SYSTEM

• FAST 30 SEC. DISK FORMATTING

Update your sound disks with any Mirage operating system. Format your blank disks 6 times faster than your Ensoniq formatter. Requires only a Mirage or Multi-Sampler. Send \$39.95 for the TRITON DISK UTILITY.

TRITON

Box 395

Grand Island, NY 14072

THE QUIET REVOLUTION

By Don Slepian

This is a sequel to my article on page 51 of the January issue of *Electronic Musician* magazine entitled "The Stereo Mirage". I will assume that you have read it, either from the magazine itself, or from downloading it from the Synth database area on PAN, so that I won't have to repeat too much information here.

Here is a very simple and inexpensive hardware modification that will greatly improve your Mirage. Most significant is a 13db decrease in noise. I had quoted 6db in the E.M. article because I had made my measurements on the Mirage in isolation. When the Mirage is used with a mixer and the lower volume of the new output is compensated for, I've found the noise reduction to be no less than 13db. That's 1/20th the noise, effective for all Mirages, keyboards and racks. Imagine the acoustic piano played pianissimo and fading into a background of silence. Imagine the Mirage at stage volume putting out no hiss. There is nothing subtle about this, and for me, there's no going back to a standard Mirage ever again. I have also found a much easier way to do the modification, making it a half hour job.

There are eight channels of analog processing (VCF's) in the Mirage. The eight separate channels are summed together to form a mono signal, passed through a VCA that is controlled by the front panel volume slider, and then sent out the audio output jack in the rear of the instrument. The VCA (a poorly set-up NE570) is a real hiss monster, a loud, rude, and inexplicable flaw in an otherwise brilliant design. They could have used a Curtis CEM3360 Dual VCA and had a clean, quiet stereo instrument for 3 more in parts cost!XXXXX insert cents? Ensoniq could change the design of new Mirages and easily have a technically superior product: 13 db quieter, eight discreet outputs, stereo outputs, stereo headphone jack, and mono output, for perhaps 10 additional parts cost. This will never happen unless there is a clear demand from present and potential customers.

Unscrew the cover of the Mirage with a 5/64ths allen wrench, and take a few moments to admire the circuit board. On a keyboard Mirage you will have to remove the keyboard to gain full access to the circuit board. Note very carefully the orientation of the keyboard connector when you remove it from the circuit board (I draw myself little maps and diagrams). On the right hand side of the board notice two rows of four chips surrounded by lots of little parts in a very symmetrical arrangement. These chips are the eight CEM 3328 VCF's where you can extract clean, quiet signals. This is where you'll do the mod.

Nine wires must leave the Mirage board to the outside world: eight signal wires and a ground. They are easy to find. First, let's find the ground. Take a ruler and measure two inches from the right rear corner of the board along the right edge going towards the front. You will see three small blue cylindrical parts (capacitors). The capacitor closest to the right hand edge of the board has "C87" written on the board right next to it.

Solder a 12" piece of light gauge wire to the right hand lead of the capacitor, the lead that goes into the light green area at the right edge of the board. This lead will serve as the audio ground. The little parts with bands of colored paint on them are called resistors. Look along the right hand edge of the circuit board and find the resistors labeled "R126", "R133", "R140", and "R147". Solder wires onto the leads of those resistors on the sides closest to the CEM 3328 chips. Notice that the next column of CEM 3328 chips and associated parts are exactly symmetrical to the column where you just soldered the last four wires. Duplicate your work with this column. You can use a needle or other small tool to lift the resistor leads off the board a little bit to make the job of attaching wires and soldering them easier. You should now have nine wires: 8 signals and a ground. This completes the internal work on the Mirage. With the cover open boot up a disk and get the sequencer to loop some music. Check each of the eight outputs before closing up the machine. Put on a pair of headphones and touch the ground wire to the shaft of the headphone plug and one of the eight signal wires to the tip. Occasionally you should hear a single note in your headphones. Go through each of the eight signal wires and in this way you can check your work. It is possible to do this mod without drilling any holes in the instrument. If you are not using the sequencer memory expansion accessory or the input sampling filter you can take the nine wires out of the Mirage through the expansion bus opening.

Another possibility for a rack unit is to have the wires come out the top. My rack units are in a road case, and in the interest of improved ventilation I keep their covers off anyway. When I mount a jack on the Mirage I use a DB-25 connector (like the RS-232 serial port connector on the back of a computer, available at Radio Shack) and cut a rectangular hole to mount it above the expansion bus opening in the rear of the instrument. Whatever you do, don't mount standard 1/4 inch phone jacks on the Mirage. The case must be electrically isolated from the audio ground (a hum would result if you should short them), and standard jacks don't allow for such isolation.

So now I've left you with nine wires coming out of your instrument. You now have several options. The option giving you the most power and flexibility is the most costly: buy an eight channel line level mixer, such as the Tascam M1-B (around \$250). On the other extreme, if you have no interest in stereo and just wish to have the noise reduction, have each of the eight signal wires go through a 10k 1/4 watt resistor and join together at a single point, and connect this point and the ground wire to a female phone jack. I personally go the other extreme: I keep my Mirages's eight channels separate, and run them through eight channels of amplification and surround the audience with eight separate speakers. It sounds so incredibly good that I'd rather be the only one in the world who does this, so please forget all about this option. What is most generally useful is the set-up I described in the *Electronic Musician* article: divide the eight outputs into two groups of four, and make a female

jack for each.

In the E. M. "Stereo Mirage" article I talked about running external audio through the Mirages VCF's to turn it into a MIDI controlled audio processing device. John Simonton of PAIA Electronics is considering offering a kit that will give you that capability as well as the noise reduction and stereo outputs. Contact PAIA Electronics at 1020 Wilshire Blvd., Oklahoma City, Oklahoma 73116 (405) 843-9626. Put yourself on the reservation list if you would be interested in such a kit. A large and well established East Coast music dealer, Caruso Music, is considering offering a service in which you send them your keyboard or rack and they ship it back to you with the modification installed. Since Ensoniq is stonewalling this whole issue, the mod would break the Mirage warranty if yours is still in force. A tentative price of \$130 plus return UPS shipping would give you 13db less hiss, eight discreet outputs, stereo outputs (plug into the right jack only for mono), and a stereo headphone jack with volume control. Call Caruso Music at (203) 442-9600 and put your name on their list if you would be interested in that service. If both PAIA Electronics and Caruso Music get enough names on their reservation lists then these services are sure to be offered.

So, this is it on the quiet Mirage. I did this for myself to improve my own music, not for any fame or fortune. I have three Mirages at home and eleven in my lab at work, so you might say I'm into this instrument. I even took my keyboard Mirage, carved a 19 inch slice around the front panel keypad/display, removed the circuit boards, threw out the case, and mounted the whole thing in the top of my rack case. The Mirage keyboard alone plugs into this homemade rack unit with a 6 foot ribbon connector. This mod eliminates an extra road case, a lot of weight, and lets me have just a single naked keyboard between me and my audience with much improved sight lines from everywhere in the house.

Next Mirage hardware project is to have three small pushbuttons for each Mirage mounted into my pedalboard. Just a single tap of my foot will load any of the three sounds off a single disk. The MIDI change program commands are not convenient for me since I use no computers in my stage set-up, and this project will cost me less than \$20 (?????) in parts and allow me to use my feet. I'll use 556 timers to sequentially throw 4016 CMOS switches that will enter the correct pushbutton sequences on the Mirage keypad. I'll write it up for the Hacker when I'm done.

If you would like to hear what music I've done with the Mirage you can call JEM Records at (201) 753-6100 and order the album "Reflections" on CD, tape or lp. My cassette "Christmas Candlelight" on the Fortuna label (415) 883-9054 has extensive and unusual Mirage orchestrations. If you are in the New York area send a self-addressed stamped envelope to Don Slepian, P.O. Box 836, Edison, NJ 08818 and we'll send you our latest concert flyer. If you can't find a copy of the January issue of Electronic Musician (that contains the "Stereo Mirage" article) you can order the magazine for \$3.50 from Mix Publications, 2608 Ninth Street, Berkeley, CA 94710 (415) 843-7901.

ESQ'1 SOUNDS

THE TRANSONIQ HACKER'S OWN
CLARK SALISBURY AND ERICK HAILSTONE
HAVE CREATED A LIBRARY
OF ESQ'1 SOUNDS UNEQUALLED IN
THE HISTORY OF SOUND PROGRAMMING!
40 UNBELIEVABLE SOUNDS—ONLY \$39.95!
GO FOR THE GUSTO! MEET GIRLS!
GET INVITED TO CANASTA PARTIES BY
FOREIGN HEADS OF STATE!
Send check or money order to
THE MIDI CONNECTION
7280 S.W. 104th, Beaverton OR 97005
Specify Mirage disk or cassette tape.
Allow 3-5 weeks for delivery.

HACKERPATCH

PROGRAM:FENDER

Todd Vogelei

It occurs to me that the majority of electric piano patches I've been running into lately have been copies of some synthesizer's copy of the real instrument doing that sound. My personal pet peeve is "DX-7 Rhodes" - it's not a Rhodes - it's a DX-7 and real Rhodes lovers know that it's just not quite the same. For you real Rhodes lovers, here is my version of a real Rhodes for your ESQ-1.

PROGRAM: SFBASS

Jim Grimes

This patch emulates a Fender Precision electric bass guitar. It is the smooth sound of a fretted bass using flatwound electric guitar strings. If you need a harder bass sound (the type of sound you get from conventional-wrap electric guitar strings), this bass sound gets a little funky. Change the filter, Mod #2 to ENV2, +22. Should you need to damp the strings a bit, as would be the case in a lead bass run on a fretless electric bass, try lowering T3 of ENV3 to 28. Drop me a line to swap patches and tips. Jim Grimes, PO Box 365, Harbor City, CA 90710.

PROGRAM: NUAGE1

Roy Smith (Turtle Beach Softworks)

This sound is reminiscent of the type of spacey "New Age" stuff that's coming out on Wyndham Hill and Private records. It sounds best with gobs of reverb. The Mod wheel is used to add in a percussive tone to the start of the sound. As you move the wheel up, more of the tone is heard. You can get many neat variations of this sound by just changing the waves used by the oscillators. Another idea is to play with the filter section, since it is programmed to close down at attack, then open up as it fades. You can get a nice sitarish sound just by adding resonance to the filter. As always, have fun!

PROGRAM: GEGEE

By Erick Hailstone (MIDI Connection)

This patch uses piano waveforms with long attacks and long sustain. Panning is set at medium speed. The overall effect is like a large ambient electronic keyboard with an orchestral nature. A large sound that will fill up any dead space.

ESQ1 PROGRAM SHEET PROGRAM: FENDER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	2	EL PNO	LFO1	4	ENV1	0
OSC 2	-1	0	0	SINE	LFO2	0	ENV1	0
OSC 3	2	6	0	BELL	LFO2	0	OFF	-32

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	On	OFF	0	OFF	0
DCA 2	0	On	LFO2	63	LFO2	63
DCA 3	23	On	ENV3	63	OFF	0

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
Filter	21	13	19	KBD 2	12	VEL	13

	Final Vol.(ENV 4)	PAN	PAN MODULATOR	DEPTH
DCA 4	63	8	LFO3	-50

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	20	Off	On	TRI	0	1	0	OFF
LFO 2	9	Off	Off	TRI	0	9	20	OFF
LFO 3	18	Off	Off	TRI	0	0	44	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	0	0	63	0	0	63	0	0	63
ENV 2	63	-33	-33	0	0	0	0	0	0	0
ENV 3	63	30	1	59	22	0	28	47	37	15
ENV 4	63	23	0	29	63	0	40	48	19	9

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
Modes	Off	On	Off	0	Off	Off	Off	Off

	Split/Layer	Split/Layer Program	Layer	Layer Program	Split	Split Program	Split Key
Split/Layer	Off	-	Off	-	Off	-	60

ESQ1 PROGRAM SHEET PROGRAM: NUAGE1

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	1	0	0	FORM15	OFF	3	OFF	1
OSC 2	0	0	0	SYNTH2	OFF	6	LFO 2	1
OSC 3	0	0	0	SYNTH2	OFF	0	OFF	0

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	On	ENV4	44	WHEEL	30
DCA 2	0	On	ENV2	63	WHEEL	-7
DCA 3	0	On	ENV2	63	WHEEL	-8

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
Filter	48	13	63	ENV4	-45	OFF	0

	Final Vol.(ENV 4)	PAN	PAN MODULATOR	DEPTH
DCA 4	63	8	LFO3	63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	47	On	On	TRI	63	36	0	OFF
LFO 2	0	On	On	TRI	0	33	30	OFF
LFO 3	16	Off	On	TRI	0	21	6	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-25	28	63	0	0	0	38	38	63	0
ENV 2	57	63	0	0	0	35	26	58	20	0
ENV 3	40	63	0	0	0	57	35	55	20	0
ENV 4	63	46	58	40	0	0	21	21	53	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
Modes	Off	Off	Off	0	On	On	On	On

	Split/Layer	Split/Layer Program	Layer	Layer Program	Split	Split Program	Split Key
Split/Layer	Off	INT 1	Off	INT 1	Layer	INT 1	60

ESQ1 PROGRAM SHEET PROGRAM: SFBASS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	5	BASS	LFO1	-7	OFF	0
OSC 2	-1	0	5	SINE	LFO1	5	OFF	0
OSC 3	1	7	2	BASS2	LFO1	5	LFO1	-1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	7	On	ENV1	63	OFF	0
DCA 2	20	On	ENV1	51	OFF	0
DCA 3	9	On	ENV2	52	LFO1	2

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
Filter	0	0	10	ENV3	51	OFF	0

	Final Vol.(ENV 4)	PAN	PAN MODULATOR	DEPTH
DCA 4	63	8	OFF	0

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	23	Off	Off	SAW	2	0	0	WHEEL
LFO 2	17	On	On	TRI	13	0	18	WHEEL
LFO 3	16	Off	Off	SAW	5	1	20	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	15	20	0	0	0	53	63	20	9
ENV 2	63	36	57	33	0	0	27	30	22	0
ENV 3	45	34	0	32	14	3	24	53	20	9
ENV 4	63	57	63	8	0	0	39	49	20	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
Modes	Off	Off	Off	0	On	Off	On	Off

	Split/Layer	Split/Layer Program	Layer	Layer Program	Split	Split Program	Split Key
Split/Layer	Off	-	Off	-	Off	-	-

ESQ1 PROGRAM SHEET PROGRAM: GEGEE

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	3	EL PNO	LFO1	3	OFF	0
OSC 2	0	0	5	BELL	LFO1	-3	OFF	-33
OSC 3	-1	0	5	PIANO	LFO2	0	KBD2	0

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	55	On	VEL2	-4	ENV1	45
DCA 2	39	On	VEL2	52	ENV1	59
DCA 3	63	On	ENV2	52	KBD	19

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
Filter	21	0	0	ENV3	63	ENV1	27

	Final Vol.(ENV 4)	PAN	PAN MODULATOR	DEPTH
DCA 4	63	6	LFO3	63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	20	Off	Off	TRI	3	0	0	WHEEL
LFO 2	0	On	Off	SQR	63	0	20	OFF
LFO 3	10	Off	On	SQR	63	0	63	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	63	63	43	0	0	57	63	63	0
ENV 2	63	-35	-35	57	0	0	34	0	25	63
ENV 3	63	63	10	43	22	0	33	47	37	15
ENV 4	41	63	0	16	0	0	33	57	44	43

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
Modes	On	Off	Off	0	Off	Off	On	Off

	Split/Layer	Split/Layer Program	Layer	Layer Program	Split	Split Program	Split Key
Split/Layer	Off	-	Off	-	Off	32	60

CLASSIFIEDS

USER GROUPS

ESQ-1 user group. If there are enough interested parties, I will form a user group on the West Coast and act as a clearing house for all the patch/sequence trades. Patches should be FREE for the asking. Let's develop a great patch library. Jim Grimes, PO Box 365, Harbor City, CA 90710.

Forming an ESQ-1 Users Group in the Philadelphia area to exchange patches, programming info, tips, etc. Contact Tom McCaffrey, (215) 750-0352.

16-Track recording studio is interested in exchanging samples. We have a huge selection. Also interested in starting a users group in northeastern and central Pennsylvania. Contact Ralph DeLong, Carillon Studios, 19 Turner St., Plymouth, PA 18651 or call (717) 779-9015.

Angle City Audio Software library for the Korg DW 8000, EX 8000, and DW 6000: Write for free information and receive 15 sample programs. DW 6000: 128 sounds and related materials for \$25.00. DW 8000 and EX 8000: expanding sound library and Users Group. Now contains 256 sounds. \$25.00 buys first 128 sounds, programming guide, membership in user sound exchange group, free telephone consultations, and newsletter. Additional DW/EX 8000 sounds are available to members at regular intervals at low cost. Audio demo \$2.00. COD available, and our friendly (and unique!) money-back guarantee. Call and let us answer your questions. A.C. Audio Software, 2 Liberty Place, Middletown, CT 06457. 203-347-5166.

SAMPLES

I am in need of flamenco guitar samples - rasqueado, et. al. Anybody out there with a little "duende" in the machine? Sue's-in Zaher-Emig, 2765 Gerry St., Gary, IN 46406.

CHANGE SOUNDS FAST!!! Up to 48 sounds per disk. Recorded in our state-of-the-art computerized studio, these are among the cleanest samples available. Our huge library includes many sounds like those of popular synths, drum machines, samplers, trad. & exotic inst., as well as custom 32 partial additive synthesis. Our custom service dept. will tailor your samples to best suit your needs; performance, sequencing, et al. Call or write for info: WOODSTOCK DIGITAL DESIGNS, PO BOX 1112, WOODSTOCK, NY 12498, (914) 246-6586.

AAAAARRGGGHH! I have just purchased a Mirage for use in my D.J. work, spinning 50's and 60's music. Every Saturday night I broadcast my show on a local FM commercial radio station and have the chance to turn on thousands of people to the wonders of the Mirage. I am looking for samples of anything involving the 50's and 60's, special effects, grunts, groans, moans, and whatever! I can exchange high-quality cassette recordings of my show or blank disks for your samples. Write: Stephen Rabow, 6916 Point of Rocks Road, Sarasota, FL 34242.

WANTED: RICH, FULL, ANALOG synth sounds a la RUSH and Van Halen. If anyone has quality samples from Oberheims, Prophets, Rolands, etc. and is interested in selling or trading, please call: DARIO ROAS, (301) 735-1934 after 9:30 pm or write: 2901 Logan St., Forestville, MD 20747.

Wanted: Mirage owners nationwide to exchange samples. Contact: Don Corrieri, 8329 Hillendale Rd., Baltimore, MD 21234. (301) 665-2946.

I would like to swap samples & discuss techniques for the Mirage. San Francisco area. Call: David Wise, (415) 346-2848.

We have ALL kinds of Mirage samples: Minimoog, bells, fat analog and DX7 synths, numerous drums, humorous, you-name-it. Professionally recorded and sampled in recording studios, computer-edited to save memory and disk-load time. From \$17.95. Send \$1 for listing. Livewire, Dept. TH, 79 Shrewsbury, Oceanport, NJ 07757.

WOW!! Novelty disks - The Three Stooges, Warner cartoons, Johnny Weismueller "Tarzans," Johnny Carson Show, etc. Fully guaranteed at \$15.95 per disk. For list and prices, send S.A.S.E. to: Talence Recording, 906 E. Elmwood Ave., Burbank, CA 91501.

SERVICES

Customizing of disks (moving wavesamples). Jack C. Loesch. 201-264-3512 after 6 pm Eastern time.

WHY PROGRAM WHEN YOU COULD BE PLAYING?? Alternate sound patches for DX7/TX7, CASIO, KORG, DW8000, ROLAND JX8P/10, JUPITER6, MIRAGE, SPX90, and all JUNO's from only \$15.95. Demo cassettes available. Send SASE, specify synth. Livewire Audio, Dept. TH, PO Box 561, Oceanport, NJ 07757.

EQUIPMENT

Will swap even: Classic Mirage keyboard for your rackmount. (Running out of room) Call Jane Talsman, (503) 245-4763.

SOFTWARE

Demo versions of Sound Designer and Vision are available now on Mirage-Net for users with computers and modems. After logging on, at the Main Menu Y)gll for the SYSOP and you will be allowed to download the programs free of charge. (503) 646-2095. Also, a new, enhanced version of Mirage-Lib, the Macintosh/Mirage wavetable librarian, is now available. It sends AND receives from the Mirage, as well as the added feature of supporting Sound Designer files for sending/receiving. Existing Mirage-Lib owners can upgrade for no charge. For information, call (503) 641-6260 or send a check or money order for \$49 to: Beaverton Digital Systems, PO Box 1626, Beaverton, OR 97075.

I am looking for software for an Atari ST. Write to Ron Goodman, 12702 Emelita St., North Hollywood, CA 91607.

YAMAHA FB-01 VOICING/LIBRARIAN SOFTWARE! The wait is over! If you own a Macintosh 128, 512, or Mac Plus, and an FB-01, then now is the time to purchase software. You can send and receive voices or banks of voices from the FB-01 and save them on Macintosh disks. You can edit existing voices, or make your own from scratch. This program is a MUST for all Mac/FB-01 owners, and for \$69 it's half the price of the competition. For information, call (503) 641-6260 or send a check or money order for \$69 to: Beaverton Digital Systems, PO Box 1626, Beaverton, OR 97075.

Transfer your parameters from MIRAGE to any printer with PARAMETER, a new program for your APPLE II. Print parameter number, name, range, and values for all 12x8 wavesample parameters and all 31x4 program parameters in a format like ASG. Requires MIRAGE or MULTISAMPLER, MASOS, PASSPORT compatible interface card, APPLE II+/E. Send US\$19.95 or CAN\$27.95 to YVES LEVESQUE,

1935 COTE SHAWINIGAN-SUD, QUE CANADA G9P-4W1.

SYNTHASSIST -- THE MIRAGE/IBM-PC LINK!! A COMPLETE VES, PARAMETERS, ANALYSIS, HELP, CONTROL, POWER, SPEED, AND SIMPLICITY. INFO/DEMO CALL/WRITE: NORTHEAST VISIONS, 68 MANOR DRIVE, GLENMONT, NY 12077. (518) 439-0015.

More than a MUSIC SOFTWARE CATALOG... Complete, detailed information on leading MIDI software products including patch editors, sequencers, transcription examples, etc. We carry a complete line of software products for professional and home studio use. GET THE DETAILS BEFORE YOU BUY. Send \$2 for P&H to Scherzando Music, PO Box 3438, Dept. THCAT, Milford, CT 06460.

Discount computer software and hardware. We are dealers for DIGIDESIGN, SONUS, ENHARMONIK, DR. T, HYBRID ARTS, MARK OF THE UNICORN, OPCODE, TRITON, and many other MIDI companies. LOW prices on RAM cartridges, MIDI mergers and interfaces, sequencing and visual editing software for MIRAGE and other synths. Send SASE (specify your computer) for pricing on our complete line of MIDI products for Apple, Atari, Commodore, Macintosh and IBM/compatible computers. Livewire Audio, Dept. TH, PO Box 561, 79 Shrewsbury, Oceanport, NJ 07757.

MIRAGE VISUAL EDITING SYSTEM software for Apple II. Includes Apple disk & Mirage disk. \$150. Call Marcus, (805) 987-9932.

PATCHES

ESQ-1 (The \$1400 Fairlight?) Orchestra sounds, wheel controlled filter sweeps, sampled sounding EFX, choir voices, Hammond B-3 with and without keyclick, wheel controlled Leslie, and more. 40 studio quality patches w/performance notes. Send \$16.00 for datasheets or \$25.00 for data tape (cassette) to: WEINBECK SOUNDS, 485 Shelard Pkwy, Suite #203, St. Louis Park, MN 55426.

ESQ-1 owners! A repeat customer wrote, "I really enjoyed your first volume. I don't even use the factory sounds anymore." Dazzling professional patches, 40 for \$20.00, 80 for \$30.00, 160 for \$50.00. Free listing available. Nick Longo, 1640 Walnut St. Apt. C, Berkeley, CA 94709. (415) 548-6193.

ESQ-1 owners: 40 new sounds for your synthesizer, on cassette with data sheets, \$25. Also available, an ESQ-1 Patch Generation Program for the Commodore 64 with Sequential or Passport interface, \$20. Jamos Music, 1970 N Hartford #17, Chandler, AZ 85224.

MISC

Ensoniq Sound Disk Parameter Listings: Turtle Beach Softworks announces it is selling a complete set of ASG style printouts of all sounds on all Ensoniq factory sound disks from #1 to #18. The set costs \$24.95. Send to Turtle Beach, POB 5074, York, PA 17405. Custom listing service available too.

FREE CLASSIFIEDS!

Well, - within limits. We're offering free classified advertising (up to 40 words) to all subscribers for your sampled sounds or patches. Additional words, or ads for other products or services, are 20 cents per word per issue. (Unless renewed, freebie ads are removed after 3 issues.)

THE INTERFACE

Dear TH:

First, I want to thank you for your publication as it has proved to be very valuable in all aspects of using my Mirage. That aside, I am writing to inquire about three items that I am sure others out there are interested in.

The first is the availability of software which will perform the tasks outlined below easily on the IBM-PC. I recently purchased VISION which I hoped would provide these tasks. In some respects it does, but in many it does not (please see below for next item).

Regarding background info that influences the list: I am interested in using existing samples as I do not have the equipment nor the patience to gather my own quality samples. I am interested in manipulating those samples (like a synth) and arranging them in memory for creative and live situations. For example, creating a disk like factory #13 or easily finding and changing top keys and seeing program information.

The list includes:

1. Visually seeing memory allocations across the KB, and being able to see how other potential samples can fit in. Purpose: mix and match samples and customize memory.
2. Be able to on screen change top keys and program info - side by side.
3. The ability to hear each sample without selecting and doing much manual labor.

The second item is that the VISION package includes a manual, but it is a bit sketchy in describing each menu item. While understandable and much better than your typical IBM manual, it does not carry a novice through some of the manipulations. While a good reference, are there publications out there that would provide assistance in merging the reference with application - something similar to the application notes found in the VISION manual regarding looping. Perhaps the first items I discussed above are very well covered in VISION, but there is no help to the novice with application notes and examples.

Finally, will you be running a review on the IVM Expander? Looks like a great tool for live performance!!

Keep up the good work. Long live the Mirage!

Joe Gawzner
Corona del Mar, CA

[Turtle Beach's response: We feel that

Vision provides everything listed but does require some knowledge of MASOS and the operation of the Mirage.]

[TH: We've heard some rumors about someone coming up with an all-inclusive operations/tutorial guide for the Mirage. Supposed to be available fairly soon. While you're waiting, you might want to check out the Hacker's own Reprint #1 - OPERATIONS. Also, we plan on reviewing both IVM's and Virtual Engineering's products as soon as we receive evaluation samples.]

Dear TH,

Henry Corwell, (1897-1965), American Composer, pianist, and writer on music was an important figure in 20th Century music for a number of reasons. A musical explorer, he helped found the modern American music scene. He coined the term "tone cluster", using them in music as early as 1912. He was an early proponent of prepared piano, a method of modifying piano timbre by placing objects on the strings, in the harness and elsewhere, and generally changing the quality of attack, resonance, and frequency response enough to make the instrument "something else" controlled by a keyboard.

So how does this relate to us MIDI musicians? Well, aside from the obvious total depth and image sounds available from prepared piano technique that is fertile ground waiting to be tapped with sampling synthesizers, he also thought of a terrific cure for the stuck note syndrome. The other night, playing the ESQ-1, while chaining MIDI channels with the data slider on the MIDI page, I shot through my Mirage rack receive channel and didn't lift the note up soon enough. Although the ESQ-1 manual says to turn the offensive instrument off, Mr. Corwell provides us with a more elegant way. I call it the "Corwell Solution." Switching back to the Mirage receive channel, while it was happily drowning into oblivion, I proceeded to send it more notes than it could handle - 8 voices and the one that was stuck made one too many and it shut everything off. It seems as if the Mirage shuts down when you feed it too much. Try it!

Sincerely,
Tom McVeety
Albuquerque, NM

[Ensoniq's response: Actually, all that is happening is that you're sending more than 8 keys to the Mirage and this ends up "stealing" the stuck voice. When you release the new keys, the stolen voice is

turned off in the normal manner. This works with almost any MIDI keyboard (except those that don't steal voices.)]

Dear TH,

Just got the December issue yesterday, and found two very exciting things: The IVM mod for extra storage and, deep in the Connolly article, a mention of allowing MASOS to go multitimbral. Now we're talking! (I owned the Mirage keyboard version II for about a year before trading it in for a rack and an ESQ). The two changes in the Mirage would make this instrument exceptional. Where, when, and how much for the MASOS change? Sign me up now!

And, being an owner of both the ESQ and the rack, I don't mind having as much information as possible on both instruments included in every issue!

For those of us who enjoy using our feet in performance, I recommend looking into the MIDI-Step, or 13 note pedal board MIDI Controller, distributed by Russ Jones Marketing Group - 17700 Rayner St. Suite 1001, Northridge, CT 91325, list \$395. It looks to be a lot smarter than my KORG MPK-130, the only other one on the market. (I don't work for them. I don't even own the unit, but thought I would get the word out!)

Thanks,
Tom McVeety/Kendall
Albuquerque, NM

[Ensoniq's response: The Mirage is already multitimbral in the sense that it can make more than one sound at a time with dynamic assignment of sounds to voices. The Mirage does not support different MIDI channels for different wavesamples as this is of limited value. Trying to play a wavesample across a wider range than intended will produce distortion. The only real value would be to have independent controllers (pitch bend, modulation, etc.) for each wavesample.

Incidentally, MASOS is NOT the normal operating system for the Mirage, it is the Advanced Sampler's O.S. for making samples. The normal operating system is simply called O.S. 3.2, not MASOS.]

Dear TH,

A couple of quick questions:

1. I'd like to figure out the original pitches sampled on factory disks since this information is almost necessary for

functions such as mix mode and the MASOS add function. Can this be done by loading wavesamples into the MASOS "plain vanilla" envelope? Is there another, better way?

2. I often use the brass sound on Disk #2 (lower program) for quick transposing since the one sample covers the entire keyboard. However, when I do this I'm plagued with frequent distorted, raspy sounding notes. What might be causing this? (The only parameters I change are those for relative tuning - 67 and 68.)

Thanks,
Bryce Inman
Waco, TX

[Ensoniq's response: 1. A sound carries all of its program information with it when loaded so you can't load a sound "into" another template. Although there is no way to determine the original pitch of a sampled sound without knowing the rate at which it was sampled, you can easily tell if sounds can be combined by looking at the Fine Tune parameter (68). If they are the same for two wavesamples, the wavesamples will be in tune (although they may be in different octaves.)

2. Transposing a sound out of the pitch range it was intended to play in will always cause distortion. If played too low, you will hear subharmonics of the sample clock. If played too high the sample may alias.]

Dear Sirs:

Are any of your readers out there using an ESQ-1 with an Amiga computer? The Amiga is now starting to have some exciting music programs come out for it, but what we are waiting for is, of course, an ESQ-1 librarian/editor for it. I am considering writing an ESQ-1 librarian/editor/sequencer storage program if one does not become available soon. Do you know if the information on the format of the sequencer data is available? Ensoniq has done us all a great favor by documenting most of the MIDI information in the manual, but I need a bit more information.

I have been using my ESQ-1 to "play" my Amiga and vice-versa and it has been working out very well. They both share the concept of great power combined with easy-to-use operation. Using the Amiga's multi-tasking it is possible to have several programs running at the same time. When the librarian programs come out it will be possible to have your sequencer, librarian, and notation editor up at the same time you are using the ESQ-1 to play the sampled sounds of the Amiga. It is interesting to think that the designers of the ESQ-1 used to work for the bosses of the designers of the Amiga.

Sincerely,

Ronald Hill
Imperial Beach, CA

[Ensoniq's response: 1. The information in the ESQ manual should be sufficient. Librarians for other computers have been developed using this information.

2. Sorry, that's not really accurate. The founders of Ensoniq reported directly to Commodore's CEO who later left to head up Atari, before the Amiga was developed. None of the remainder of Ensoniq's engineering staff came from Commodore, rather they came from local telecommunications and biomedical companies. Interestingly, the Amiga was actually developed by the Amiga Corp., formed by former Atari engineers. Atari very nearly acquired the rights to produce the Amiga before Commodore bought the Amiga Corporation.]

Dear Sirs,

The January issue of Electronic Musician features a mod for the Mirage enabling it for stereo operation. On first reading, it doesn't seem too difficult at all. I was wondering if anyone had tried it yet, and, if so, what happened? Maybe you can get an official response from Ensoniq. Up until now they've denied anything like that could be done. It would be nice, (if the mod really works) if Ensoniq would acknowledge it and set up a way for it to officially be done for us through their authorized service network. By the way, the article also states that, with a little further effort, eight individual outputs could be achieved. This would be great! Thank you for your help on this matter.

Nick DiFabbio
NYC, NY

[Ensoniq's response: Ensoniq never denied it could be done, but the value is limited. You can not, for example, send one sound to the left and another sound to the right. The Mirage voice assignment is random. This is why separate outputs would be of no particular value since you could never tell what sound would come out what output. We don't endorse the circuit modification as presented because it includes no output buffering which could lead to damage of the internal filters if incorrect voltages are applied. We also feel that most people would find the lack of volume control and lack of output muting during boot-up to be annoying.

As usual, any unauthorized modification performed by unauthorized service personnel will void your warranty.]

[TH - We've got our own evaluations of this mod, and some additional info from its author that should appear either in this issue or the next.]

Tranasonic Hacker;

I really enjoy the fine newsletter you publish. I have the Oasis graphic editing software for the Atari 130XL and Mirage. I really feel that Oasis is a fine product for the 8 bit. However, I must admit that the Advanced Sampler's Guide is a joke in regard to its coverage of MASOS utilities.

I thought that I should let you know that I had ordered a "Sound Composers" set from K-Muse. I received Issue #18 after K-Muse cashed my check. I must say, I was plenty worried about wasting \$200.00. When they did arrive, the first thing I did was get out my chromatic tuner and check each sound. The set I received is the "Classical" set. According to my tuner, the sounds are in tune. About 20% of the sounds I would grade a "B". Again, this is subjective. Many of the sounds are grade "A", with very minor quibbles. About 6 - 10 samples are so good I am amazed. All in all, I am quite pleased with this set. I cannot speak for any other sets in their collection. I just thought you should be informed of this.

Thanks for the advice,
Stephanie Sante'
Boulder, CO

[TH - We're glad to hear yet another opinion regarding K-Muse sounds. We didn't mean to spook you - like we said, "mixed feedback."]

Dear TH:

Being one of the first few ESQ-1 owners, I am delighted to see the number of ESQ-1 articles in the Hacker growing in proportion to keyboard sales. Here in Los Angeles, finding a dealer who is not sold out of ESQ-1's is quite unusual. It is a very hot item.

There are a couple of things I have experienced that may be of some value to other ESQ-1 owners. First, if you have not upgraded your software to version 2.0, you are asking for problems. The upgrade costs \$20.00 from any authorized Ensoniq repair facility. With the upgrade you get new MIDI information as well as the solution to a couple of problems that had to do with file transfers to tape. Secondly, it is VERY important that you use a voltage line filter on your ESQ-1. Failure to use such a filter is taking chances with all of your resident keyboard memory. If you experience a power spike you can say goodbye to your sequences. The ESQ-1 is very good at erasing memory when it discovers nonrecoverable errors.

Regarding ESQ-1 and Mirage articles: It would sure be helpful to note in article titles which keyboard is being addressed. I really enjoy the excellent coverage of both keyboards and look forward to

every issue. Maybe if we are all lucky, 24 pages can double or triple.

By the way, have you heard of anyone working on any computer programs to translate Mirage parameters to ESQ-1 or vice versa?

Regards,
Jim Grimes
Harbor City, CA

[Ensoniq's response: Mirage parameters and sounds are completely incompatible with the ESQ-1. The voice architecture of each machine is totally different.]

[TH - Well, last month we made 28 pages. But, what we actually hope to do is use our new software/printer to get more material on each page - so our printing expense doesn't double or triple along with our page count. This month we'll have at least as much material as last month, but our page count should hopefully be lower. Lately, we've been getting a lot of favorable comments on our dual coverage. Lots of people seem to either have or want to have both instruments. We'll probably come up with some kind of heading to distinguish between the instruments covered - right now we're still exploring our software.]

Hey Gang-

Great Mag - I wish there was one of these for every piece of equipment I own. I am amazed at the short sightedness of people who claim to be upset because you are covering too much ESQ-1 at the expense of the Mirage and vice versa - I have both and am eager for information on either. I've tried my hand at sampling, but due to lack of bucks for equipment to make good samples (ISF, compressor, computer VES, on even a variable speed tape recorder) I am contenting myself with playing the factory disks and digging into the ESQ-1 (which requires no extras to make good sounds). Enclosed is my program for a Real Fender Rhodes. I am also interested in trading ESQ-1 sounds with anyone in the known universe.

Send your sounds, along with requests for sounds you would like, to:

Todd Vogelei
12705 Elyse SE
Albuquerque, NM 87123

[TH - Todd's patch can be found in "Hackerpatch."]

Dear Hacker,

1) Lately my project has been to have all my disks store 16 different samples to be triggered by my ESQ-1. Programs L1-L4 and U1-U4 can all have different initial

wavesamples (27), guaranteeing 8 totally different sounds. (I know the mod wheel in mix-mode can add another 8, but this can't be triggered by the ESQ-1 sequencer.) Is it possible to access (27) from the ESQ-1 sequencer so as to trigger 16 different sounds?

2) Two out of three of my MASOS 2.0 disks will not store my 16 samples to Bank #2 (4 wavesamples per half), only Bank #1 (2 per half), and Bank #3 (8 per half). (77) is on, (14) is the same for all three, I doubt that the disks are defective, what else do I look for?

3) In issue Sept., 86, George DeWolf wrote in with 5 questions that were all answered except for #4. Why is the end marker sometimes, (not always) pushed to FF on the transfer? I always make sure that the memory is equal, and that (28) and (65) are off. I have also tried (65) on and then off. This seems to work only on some samples. Does this have anything to do with the digitally diddled sounds Ensoniq fessed up to? Can we get a list of these sounds so as not to waste time trying to slide these samples around?

4) I have gotten a good string sound from disk 3.2 by shortening the memory from OO-FF to OO-7F, and using (62) and (63) to redefine the loop. Is there any way to get rid of the bump without a VES, and are there any other parameters I should try?

Thank you,
Ian Willson
Oakland, CA

[Ensoniq's response: 1. No, but you can, in fact, trigger the mod wheel from the ESQ-1. The Mirage will respond to MIDI mod wheel messages just as if you moved the mod wheel on the Mirage. Realistically, there is no way you can access 16 factory sounds at once no matter how you try to organize them. There is not enough memory in the Mirage for that and many factory sounds use mix mode for only one sound. You could take advantage of the fact that the ESQ-1 can send load commands to the Mirage via the track program selects. This will allow you to remotely and automatically load new sounds into the Mirage while your sequence is playing. We do this all the time in our demos.

2. I'm not sure what you mean. By definition, Bank 2 has a template for only 8 total wavesamples, not 16.

3. We have not experienced this problem. The easiest method for moving wavesamples is to use a VES type system. The only sounds that have been "diddled" are the sax on Disk 3, the new strings on Disk 21, the vocals on Disk 22, and the acoustic guitar on Disk 23.

4. You are trying to loop on a section of

memory which has too great a difference in volume from beginning to end. Cross-fade looping is the only thing that will work and some kind of VES is almost mandatory to accomplish this.]

[TH - See "Crossfade Looping" in Issue #15]

Dear Hacker,

I plugged in my Input Sampling Filter upside-down. Does this mean it's fried? What tests can I do to make sure it's ok?

I would like to be able to store sequence data from my Yamaha QX-7 Sequencer to the Mirage disk drive. Could this be done via MIDI? Any chance of this sort of thing being made available?

I noticed that Oberheim has a sampler [play only] that reads Mirage disks as well as others. Is there a universal standard yet? From the ad, it seemed like there is.

Keep growing!
John Adams
Elmherst, IL

[Ensoniq's response: 1. It is not likely that you damaged the ISF. If you have an ohm meter, check that the readings on the ISF between pins 2 and 44 is at least 100k ohms, between 2 and 3 is at least 100k ohms and between 2 and 5 is at least 100k ohms. If they are, you should be able to plug it in and test it in the normal fashion. A service center should be able to help you.

2. You would need a translator (most likely a computer) to convert the QX-7 data to Mirage format and vice versa. You would need to write your own software for this and get access to the QX-7 system exclusives if, indeed, the QX-7 even allows you to dump sequence data out MIDI.

3. There is a "sampling dump standard" which is being developed for MIDI but it wasn't proposed until after the Mirage was introduced, so the Mirage does not implement this. There is no standard for disk format since each machine has its own data format.]

Dear TH,

It has come to my attention that a piece of software I have written may be of use to people who own both a Mirage and an Atari ST computer. This program, which I call PPRINT (for Parameter PRINT) allows dumping of Mirage parameter and

configuration information to a printer connected to an Atari ST. While most all VES programs have some capability of this sort, they also usually sell for

ridiculously high prices. I am willing to release PPRINT as public domain software and will mail a diskette to anyone who sends me \$5 to cover the cost of media and postage. While we are on the subject, what do you know about the availability of full blown VES programs for the ST? I have heard of one called "Oasis" which I believe is to be distributed by Hybrid Arts, but it seems to be displaying all the classic symptoms of "vaporware". What goes?

Jeff Cunningham
5749 Chisholm Trail
Lilburn GA 30247

[TH - Thanks for the info - and the program! We tried it on our ST (NOTE - after we had a friend move it to a single sided disk), and it works GREAT. Latest word on the Hybrid Arts vaporware is "Spring, 87." You might keep an eye on SONUS - they'll be releasing an ST VES at NAMM this month.]

Dear Hacker,

As a new ESQ-1 owner and a long-time Wurlitzer piano owner who had to leave his piano in Alaska, I'd like to thank Roy Smith for the Wurlitzer patch. Also, the STRNG2 and MYSTERY patches from Clark Salisbury and Erick Hailstone are great! They're the best sounds I've heard on my ESQ yet!

Regarding sharing Mirage and ESQ-1 articles - I've always been fascinated by the Mirage and I don't mind skimming the information. I'm sure that someday the information for both keyboards will approach 50-50. In my opinion, it's more important right now to keep the Transoniq Hacker as one publication representing the user community of all Ensoniq equipment.

By the way, is anyone working on an Apple II interface to the ESQ?

Regards,
Jack Ginnever
O'Fallon, MO

[TH - If by "interface" you mean hardware, any of the standard MIDI interfaces for the Apple II should work. If you're talking software, we know of no one who's working on any (yet).]

Dear Hackers,

Two things... First, after reading John Connolly's "Beyond The ASG, Part II" in Issue 18 (Dec. '86), I would like to point out a couple of incorrect statements he made. In the part about timing loops, I think he confuses the concepts of bits/sec (baud) and bytes/sec. His timing loops are certainly not delaying between

individual bits in the byte sent, but rather between the bytes themselves. It is important to understand that if you wait 10 seconds between bytes, and your ACIA is programmed for 31.25 Kbaud, you are still sending at 31.25K. Most MIDI interface cards that I know about use programmable ACIAs, not "hard wired" as Mr. Connolly stated, and once the baud rate is programmed (as well as stop bits, parity, etc.) that's it, period. If he has had data overflow problems, it's because he has not waited for one byte to be fully sent before sending another one.

His timing loops will solve this but it would be much better to just read the status register of whatever ACIA is in the card and test the "Transmit Ready" bit until it indicates that the Transmit Register is clear. Then send the next byte. Any time I have ever sent SYS EXC data to the Mirage (as well as any other kind of data to any other MIDI device), I have used this method, and just as soon as the Transmit Register is clear I send another byte - NO DELAY. It is a constant stream of bits going down the pipe and I have never missed a checksum yet. Also, in paragraph 3 of the article, Mr. Connolly states that "All that is needed to initialize these cards is a simple poke or two - but again, the baud rate is hard-wired..." Not true - this "simple poke or two" IS what sets the baud rate (and other parameters of the ACIA).

Second: Does anyone know how to get to the software in the Mirage? Is there any way to transfer the operating system out the MIDI port and into an external computer for alterations? In particular, I am interested in using an alternate polyphony algorithm, such that if you play the same note twice it will not assign it to the same voice channel. That's fine for Ma-Ma-Ma-Max-Headroom but it sucks for strings - they should overlap. More importantly, I would really like one that would assign one wavesample to one voice channel always. Then, if you do the individual output mod in EM (Jan. '87), you could process each wavesample individually - a MUST for drums.

Speaking of drums, has anybody noticed that the Mirage can't play two different samples at exactly the same time? It wasn't apparent to me until I started programming drums from an external sequencer. Whenever the Kick drum and the Hi-Hat would play at the same time, the Kick would sound terrible, even if I lowered the Relative Amplitude (69) of the Hi-Hat to 0. Now I have to overdub my Hi-Hat/Cymbal parts on a separate tape track from the rest of the kit. Is this a problem that will be solved in future software revs, Ensoniq?

If anyone has ideas to share or wants

me to work on the alternate poly algorithms idea please write or call collect:

Bob Damiano
New Sync Labs
1128 Hoyt Ave.
Binghamton, NY 13901
(607) 722-8885

[Ensoniq's response: You really shouldn't be having this problem with the drums. We do it all the time here. There are (at least) two possibilities to look into: 1) Operating Systems prior to 3.2 might be creating a MIDI problem, and 2) You might actually be experiencing a hardware problem. If 3.2 doesn't fix it, you should have your Mirage checked out.]

[TH - Probably the best way to find out about the OS and how to get to it would be to try some of the people listed in our "Transoniq-Net." Start with Mark Cecys or Scott Willingham. Also, check out Richard Lord's article in Issue # 13 - "Venture Deep Inside the OS With a Monitor ROM."]

[John Connolly's response - I can find no "incorrect" statements in my article - just a few things that need clarification. I am not confusing bits per second with bytes per second, and am at a loss to figure out why you would think that. My article was written after seeing several letters in the Hacker about people wanting to use their RS-232 ports to interface to their Mirage. You cannot use ANY standard RS-232 serial driver to send data at the MIDI baud rate - that baud rate is achieved by dividing a "Hard-Wired" clock crystal by a number to achieve the baud rate. Maybe you didn't read my article in Issue #17 of the Hacker, which explains this more specifically. There were two timing loops that were necessary on a Macintosh Plus with the Rascal Development System. One for a delay between each byte, and a much longer one for the delay between front panel commands. You probably haven't used anything as fast as an 8-MHz 68000 microprocessor with a Zilog 8530 Serial Communications Chip running under something as fast as Rascal. This makes it necessary to put a timing loop in between each byte. Slower systems like the C-64 or Apple II may not have to worry about this. The serious one is the delay between certain front-panel commands, specifically, loop switch (Parameter 65). The Mirage needs time to do internal housekeeping every time a parameter is changed, and some parameters take longer than others. Obviously, I check to make sure that the transmit buffer is empty before sending a byte, and only send one byte at a time. The statement "All that is needed to initialize these cards is a simple poke or two" is correct. I'm sorry I didn't explain what that was

doing, but unclear statements aren't necessarily "incorrect". This alerts me to the fact that I need some work in the area of technical writing. Thank you for your feedback!

Dear T. Hacker,

I would like to thank everyone who has been so responsive to my Mirage article in Electronic Musician.

I don't want anyone to feel that I hold or imply any ill will towards Ensoniq. They are so busy building the existing Mirages that they felt they couldn't make any revisions at this point. Also, I'm not making any commissions or money of any sort from this Mirage mod. I wouldn't feel free to write objectively about something I'm making money from; for me it would be a conflict of interest. I hope some people do make money modifying Mirages. All these mods should be done by people with some electronics experience; I wouldn't want anyone to damage their instruments, and yet with care I feel it could be done by someone with a little practice in these things.

Don Slepian
Edison, NJ

Hacker,

I called Ensoniq Customer Service about the Virtual Turbo MME and the IVM Expander allowing 5 to 9 full keyboard sounds instantaneously. Customer Service told me that it DOES void your warranty - unlike the advertisements state! More on this?

David Beach
Colton, CA

[TH - We double-checked with them, and they said that neither of the expanders mentioned will void the warranty. They did emphasize that this is only if the mod is performed by an Authorized Service Center.]

ensoniq[®]

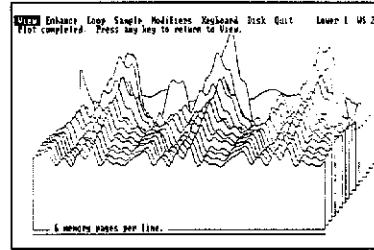
Mirage owners ...

Vision

by Turtle Beach Softworks

Complete and easy-to-use sound design program for the Mirage Keyboard or Multi-Sampler and IBM PC, XT, AT or compatible computers.

- Fast and easy wavesample editing
- Fast parameter editing with printout function
- 3-D graphic wavesample display
- Exclusive animate function
- PC disk sound storage

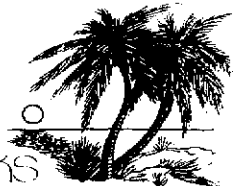


The 3D Screen

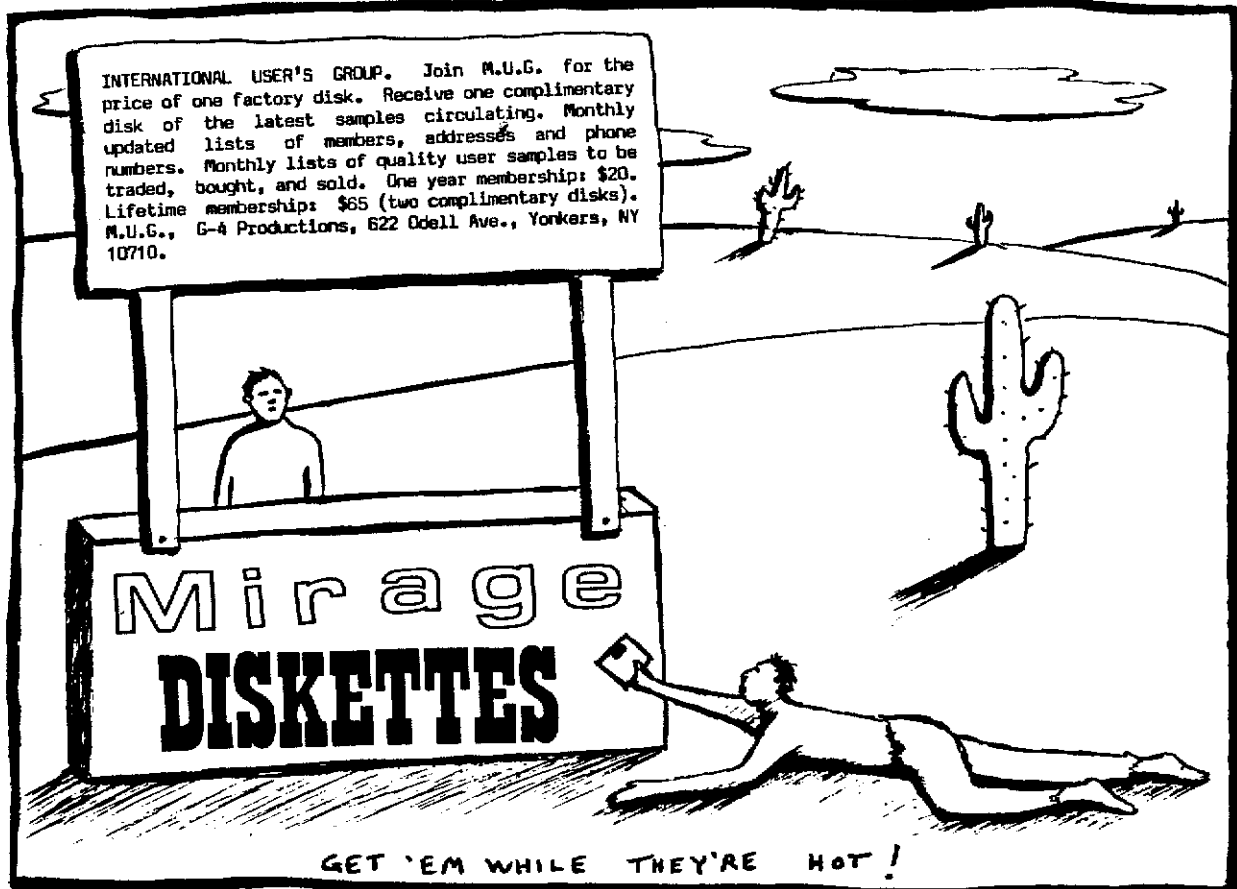
Send \$10.00 US
for working
demo diskettes.

Vision is available
at authorized
Ensoniq dealers.

turtle
beach
softworks



P.O. Box 5074 • York, PA 17405



TRANSONIQ HACKER

5047 SW 26TH DRIVE, PORTLAND, OR 97201, (503) 245-4763

BULK RATE
U.S. POSTAGE
PAID
PORTLAND, OR
PERMIT NO. 913

DATED MATERIAL - TIME VALUE
REQUESTED MATERIAL - PLEASE FORWARD

Publisher: Eric Gelsinger
Editor: Jane Talisman
Technical Advisor: Clark Salisbury
Applications: Erick Hailstone

Advertising rates: Please send for rate card.
Rates for authors: 4 cents/word upon acceptance.

Subscriptions: 12 monthly issues; (US) \$20/year, (Canada/Mexico) \$25/yr,
(All others) \$30/yr. Payable in US funds.

TRANSONIQ HACKER is the independent user's newsletter for Ensoniq products. Transoniq Hacker is not affiliated in any way with Ensoniq Corp. Ensoniq and the names of their various products are registered trademarks of the Ensoniq Corp. Opinions expressed are those of the authors and do not necessarily reflect those of the publisher or Ensoniq Corp.

Copyright 1987, Transoniq Hacker, 5047 SW 26th DR, Portland, OR 97201.
(503) 245-4763 (8 a.m. to 9 p.m. Pacific Time).

Printed in the United States.

The Mirage is Great. The Turbo Mirage is Even Better.

The \$249.95 Upgrade that puts your Mirage at Center Stage.

The Virtual Engineering Turbo MME gives you access to
10 Sound Banks. Instantly. With One Keystroke.

For the first time, a Sampler becomes a useful live performance instrument. The Turbo MME generates 5 Upper and 5 Lower sounds in memory accessible through a single keystroke on the Mirage's keypad or through MIDI patch change commands. On a standard Mirage, you have only 1 Upper and 1 Lower bank available.

The Turbo MME preserves all wavesamples, filter, and normal sampling functions. The Turbo MME is an extension of the Mirage Operating System and therefore preserves all functions. You do not sacrifice anything to gain Turbo MME power.

The RAM expansion board is bolted inside, preserving the portability and roadworthiness of your instrument.

No, you don't have to ship us your Mirage and say goodbye to it for the usual 4 to 6 weeks. We'd never give up our Mirages, so why should you? We've engineered the Turbo MME to be installed locally. Painlessly. Does not void your Mirage Warranty if installed by an Authorized Service Centre.

So upgrade to MME power now. Order today from us, or contact your local Ensoniq Dealer.

Virtual Engineering Corporation

2004 Fernwood Road, Victoria, B.C., Canada V8T 2Y9



(604) 384 04412



You'll love MME.
For only \$249.95.



Mirage is a Trademark of Ensoniq Corporation.