Transoniq Hacker

The Independent Ensoniq Mirage User's Newsletter

DISK REVIEWS - ENSONIQ DISKS #6, #7, #8, #9

By Erick Hailstone

For all of you who can't wait for new sounds, help is on the way. We are hearing from folks all over the place who are developing their own disks. Wouldn't it be great if we could just send this stuff through the phone line? Hmmmmmm.

Ensoniq has been very busy. They have four new disks coming out which brings me to the subject of this review: DISK REVIEWS !!

The first disk (#6) looks like this:

Lower	Upper
Rock guitar 5ths	Solo rock guitar
Clav	Clav
Nylon string guitar	Nylon string guitar

The sequences on all of these are killer. Some samples are less obvious than others so these sequences really put them into context. Lower sample #1 is fairly self-explanatory; distorted guitar in 5ths. This one has both better frequency response and better distortion than the earlier disk. The lower programs are status quo, chorusing, filtering, etc. The upper sample is great. Good attack and good overall sound. The mod wheel is set so you can fade to a harmonic and octave up. The other programs will switch to vibrato and add some other tonal variations.

Sample 2 is a clavinet upper and lower. Not much to say about this one. If you've heard a clav that's exactly what you'll get. Pretty standard variations.

Sample 3 is a nylon string guitar upper and lower. Not that this is written in stone but this is the best guitar sample I can ever remember hearing and that includes samples off of the high priced spreads. Tone is excellent and the attack is perfect. It takes a little practice to think like a guitar. Just remember when you strum chords put a small amount of space between each note in the chord.

Disk #8:

Lower	Upper
Brass falling/brass gliss	Brass/woodwind
Draw bar organ	Draw bar organ
Electric piano II	Electric piano II

Sample #1 on this disk is your basic big band. The upper is a combination of brass and reeds. It sounded ok initially but the more I caught on to the right stylistic phrasing the more excited I got. The sequence will tell the whole story.

The lower sample is literally what it says. Brass falling - a punch with a quick downward slide. Brass gliss is a short upward slide. These are typical devices used in almost any big band arrangement.

Sample #2. Do I have to tell anybody out there which organ this is? You know the big heavy one with the whirling, rotating speakers. It's a stock setting with the bottom three or four drawbars all the way out with percussion on.

Each of the programs has a different rotating speaker speed. Once again, as far as this sample goes, they've nailed it.

Sample #3. You remember the first electric piano disk? Well, this is one for Wurlitzer fans. This is a very funky sound. You don't hear people using it much anymore but it is perfect for some things.

Disk #7 - This disk has more "traditional" sounds:

Lower	Upper
Bass clarinet	Clarinet
Bassoon	Oboe
Choir 1 and 2	Choir 3

The first two samples are very pure. You've got to keep in mind that with all these types of sounds it takes some practice to make the pitch and mod wheels natural sounding. The sequences again give you a clear idea of how to use these sounds as they were intended.

The choirs give different ranges and different vowel sounds to work with. These are perfect settings for churches that need to flesh out the choir.

Disk #9:

Lower	Upper
Breathy bass	Clavirimba
Tymbello	Perc bottle
Chainsaw bass	Plucked brass

All of these sounds are things that can only occur with a sampling device. You take two different

sounds and graft them together, the attack of one to the body of another.

Breathy bass is an acoustic bass with air in front of it. I'm not sure if the breath is from a singer or a horn or what but it turns out to be a nice unique sound.

Clavirimba? Clavinet and marimba. This sound is hard to describe but like all of the sounds on this disk they are familiar and natural.

Tymbello is the attack of a tympani and the body of a cello.

Perc bottle is somebody blowing on a beer bottle with a bit more attack. I love this sound. Real useful.

Chainsaw bass - electric bass with a chainsaw attack? I would've liked to have been there when they sampled this one. Probably a lot of folks sitting around afterwards, counting their fingers. This is an unusual sound. You won't be pulling it out for your average pop tune. Real gritty attack - don't play a lot of notes together.

Plucked brass - this is your basic plucked string that transforms into a brass section.

The sequences that show these samples off are all wonderful.

REFRAIN

Last night I was at a recording session where the Mirage was used extensively and I must say it was kind of marvelous. This was a very small two-man studio that does a lot of TV and radio spots. It was nice to see this machine allow them to do things, to create ensembles that would never fit in the room let alone be affordable. In the future I'll pass along experiences from professionals who are recording and performing with the Mirage.
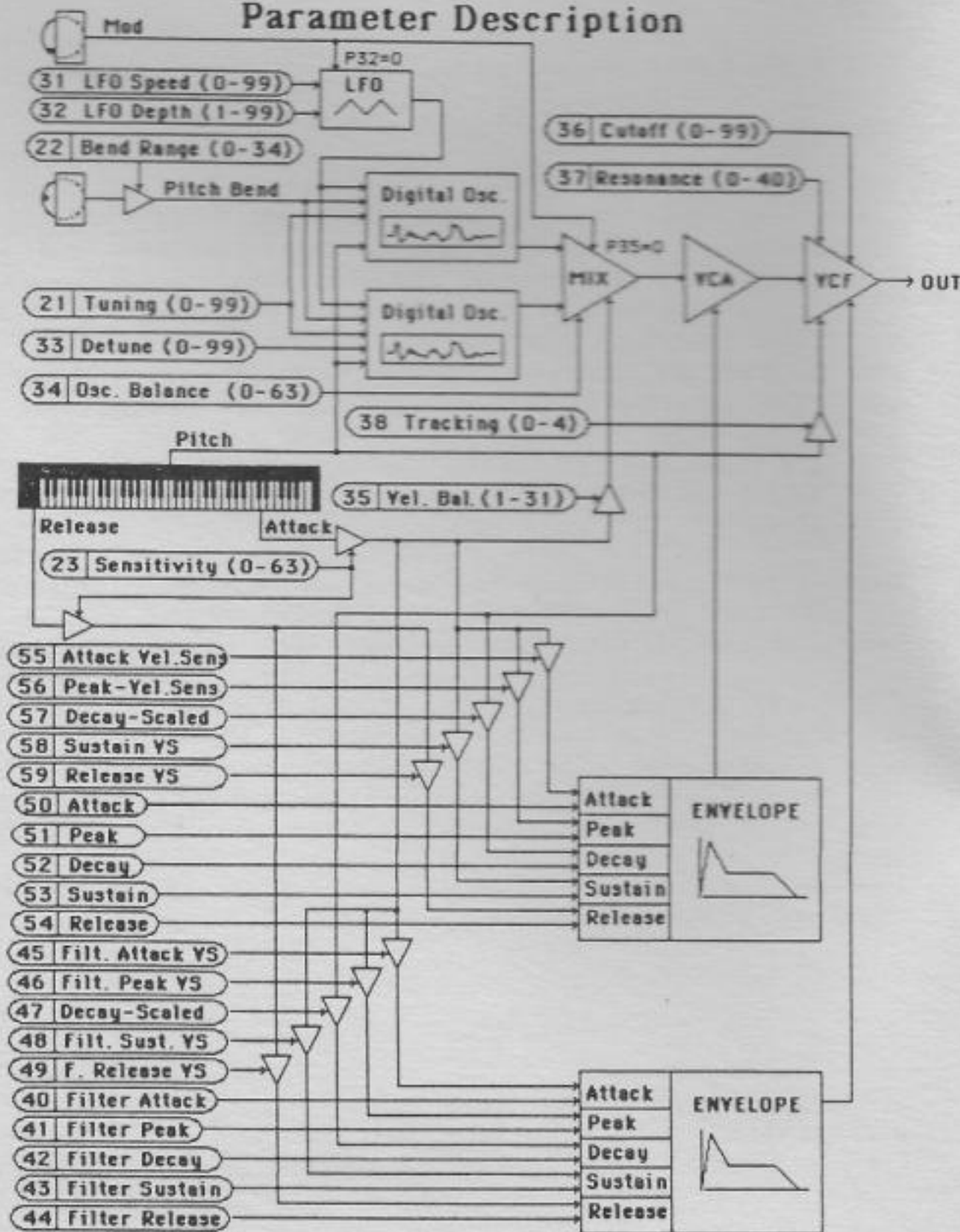
Erick Hailstone studied composition and arranging at the University of Nevada and at Berklee College of Music. He has been involved with synthesizers and related technology for the past seven years. Primarily a guitarist, his orientation has been in performing and recording with these devices.

Stan was beginning to realize that he would probably never get his explosion sample to loop properly.

Ensoniq Mirage
Parameter Description

LICKING ENVELOPES

By Clark Salisbury

The first sample I ever did on the Mirage was my own voice - a rich baritone, worldly, yet with subtle overtones of youthful poignancy. I plugged in my trusty Shure SM57, hit "sample lower" and presto! "SF" (sampling finished) was flashing in the display and I prepared to explore new areas of sonic enlightenment. I pressed a key. My voice sort of popped out of the speakers like the last of the toothpaste from the tube, darkening and decaying to silence rather quickly. This was not quite the ethereal choir I had expected. "So what gives?", I thought.

As many of you may have guessed, what gave was that I didn't start from a "blank vanilla" setting (as the Advanced Sampling Guide calls it.) Rather, I had booted the Mirage with the piano disk, and then sampled without changing any of the piano program settings. So what happened was that my voice sample played back all right but was processed by filter, envelope, and amplifier settings that had been programmed for a piano sound. This is not what I had in mind.

So, if you had hoped to avoid having to learn anything about analog synthesizer techniques by buying a Mirage, surprise! I'm here to tell you about envelopes generators, filters, and amplifiers, those pesky processors from the analog world.

An envelope is fairly easy to understand. If a sound is broken down to its components we find three basic elements, each of which is a manifestation of some sort of change over a period of time. They are pitch (or frequency), volume (or amplitude), and tone (or timbre). Let's start with amplitude.

Different types of sounds change differently across time in terms of their amplitude. A piano, for example, has a percussive attack (beginning) and will decay (die down) at a more or less steady rate if you continue to hold the key down until it finally reaches silence. A flute, on the other hand, reaches its full amplitude somewhat more slowly (less percussively) than a piano. However, it will sustain at a more or less even volume for as long as it is blown into (also unlike a piano) and the note decays quite abruptly when one stops blowing.

Attack, decay and sustain are three of the components that make up a basic envelope. There's one more part that we use to create a working envelope. It's called release, and simply put, it is the length of time it takes for a sound to decay after you have released the key(s) on the keyboard. Here's the analogy.

When you play a note on an organ, the note disappears (decays) instantly once you release the keys. When you play a note on a piano, however, the note will decay while you are holding the key and die rather quickly once you release it. But a little bit of the sound hangs over, especially on the lower notes. The sound lingers usually for only a fraction of a

second, but that minute final decay heavily colors the way in which we percieve the overall sound. I've read of studies that suggest that a sound's envelope (attack, decay, sustain, and release times) are just as important, if not more important, than a sound's timbre when it comes to how we percieve different sounds. If you think this unlikely, then set up a piano sound on the Mirage and set its attack time (Parameter 50) to, say, 30 or so and its release time (Parameter 54) to 0 (long, bowed attack, no release). Pretty weird, huh?

Anyway, the four parts of our basic envelope are attack time, decay time, sustain level, and release time. We can say that every sound has some sort of amplitude envelope. A piano, for example, has an envelope that we could graph in this way:
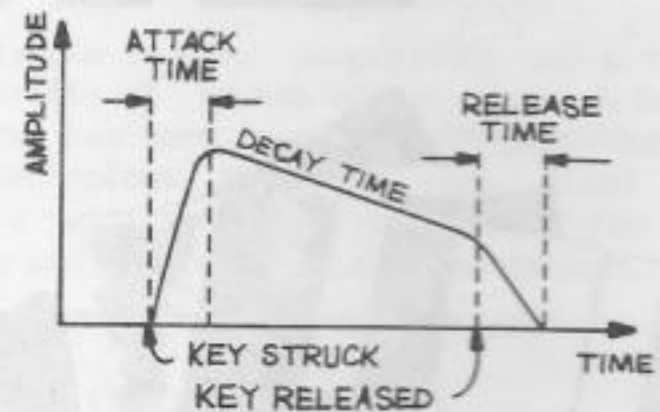
We could graph an organ in this way:
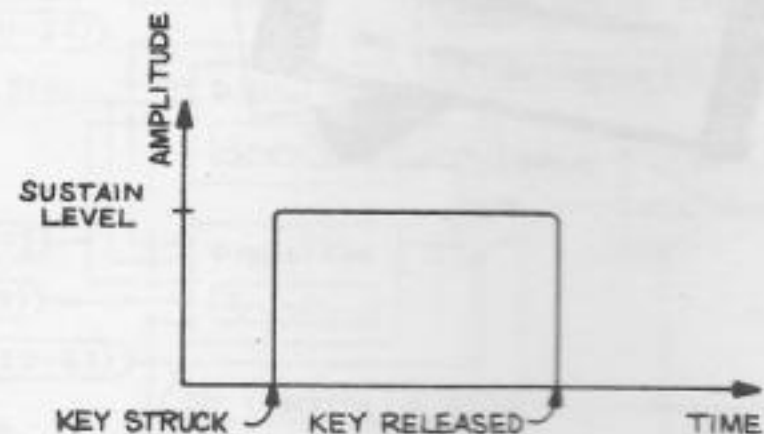
And a trumpet, whose attack is somewhat louder than the sustain portion of the sound, would look like this:
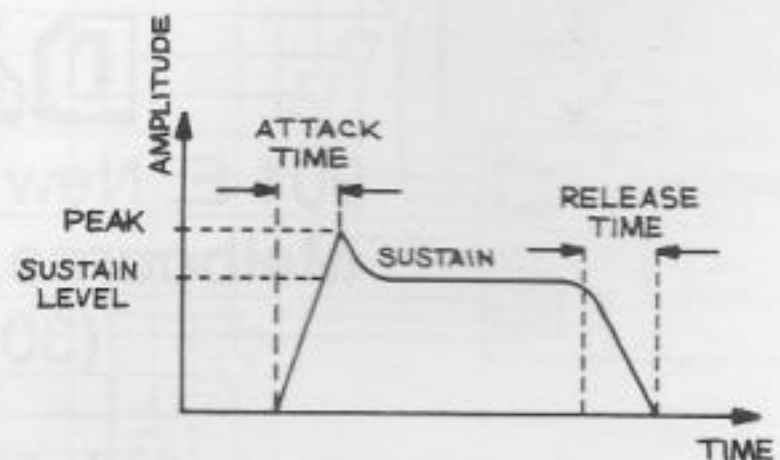
So the four parts of our basic amplitude envelope are attack time, decay time, sustain level (the volume at which a sound sustains, if it sustains) and release time. The common abbreviation is ADSR.

In more traditional forms of synthesis, we would normally start with our raw, full volume sound and use a handy device called an envelope generator to shape its dynamic movement. The envelope generator is a simple electronic device used to output a control signal which is (hopefully) more or less analagous to the acoustic envelope that we are trying to synthesize. In other words, if we start with a raw violin-type waveform (sound) and want to create a slow, bowed type of attack, we would set the attack control on our envelope generator fairly high. The effect is that when we depress a key on our synthesizer, the sound doesn't abruptly jump to full volume. The rate at which it builds is determined by the attack-time setting. Likewise, we can effect changes in the decay rate, sustain level, and release rate by manipulating the D, S, and R controls on our envelope generator.

At this point I should note that the envelope generator does not act directly on the waveform in question; it merely sends a generic signal which is, in this case, used to control a device called a VCA, or voltage-controlled amplifier. A VCA is a simple amplifier-type circuit with one important distinction. Its output volume (actually, the amplifier's gain) can be controlled by a voltage. This is how it works.

The VCA has three connections - audio input, audio output, and control signal input. This last will accept voltages within a certain range, say 0 to 10 volts. If we connect our violin waveform to the audio input and 0 volts to the control input, we will get no sound at the output. If we apply 10 volts to the control input, we get our violin wave at the output, full volume. Neat, huh? The tricky part is that if we apply a voltage that changes slowly from 0 to 10 volts, the output will give us our violin wave, but it will build slowly from 0 to full volume. Conversely, if we apply a control voltage that begins at 10 volts and decreases gradually to 0 volts, our violin wave will start out at full volume and gradually decay to silence. So where do these rising and falling voltages come from? You guessed it! From our friend the envelope generator. The basic processing circuit now consists of three parts. Our waveform generator (in the Mirage it is called a digital oscillator or DO), our VCA, and our envelope generator (EG). The output of the DO is connected to the audio input of the VCA. The output of the envelope generator is connected to the control input of the VCA, and the output of the VCA goes (more or less) to the input of our monitoring system so we can hear our sound. One word though - if you look in your parameter list in the Mirage in hopes of finding something called VCA, forget it. For one thing, the Mirage uses DCAs (digitally controlled amplifiers) instead of VCAs. The only difference between DCAs and VCAs is that DCAs are controlled by numbers rather than voltages. And, since I find VCAs not only more familiar to most people, but also easier to explain, I hope you'll bear with my somewhat obtuse approach to outlining their function. Also, since this configuration is permanently "hard-wired" within the Mirage, and a DCA has no controls of its own (only inputs and outputs) there are no parameters to change that are directly a part of the DCA. The

envelope parameters present us with all the controls we have for the DCA (never mind about keyboard scaling and envelope generator velocity sensitivity - that's for later).

There is one other EG control that I've left for last, primarily because in most "traditional" synthesizers it isn't included in the EG section at all. It's called "peak" and in other synthesizers it would correspond to EG depth or EG intensity. Its function is to control the intensity with which the EG controls the DCA. In other words, if you want to synthesize a slow, bowed attack for the violin waveform but don't want the waveform to reach maximum volume by the time it has completed the attack portion of its cycle, you can use the peak control of the EG to determine how much effect the EG has on the DCA. If the peak control is set for its maximum value, the violin waveform will eventually reach its full volume. If the peak control is set for half of its maximum value, the violin waveform will eventually reach half of its original volume. Now the applications of this may not be immediately apparent, but they are there. Trust me.

At this point, some of you may be saying, "Well, that's just fine, Clark. But, since the Mirage can sample any sound, doesn't it sample the sound's amplitude envelope and everything? I mean, why do we even need to mess with synthesizing all these envelopes and stuff, anyway? And when are you coming over for dinner?"

Well, that's a very kind offer and I'm free next Tuesday night. And, yes, the Mirage will sample any sound, envelope and all. But let's take a look at a piano sample, just for fun.

First, go out and sample the C below middle C on a nice Bösendorfer piano. Remember, now, we want to capture as much of the harmonic content as possible, so let's use a nice high sample rate. All set? Good. Now, you should have about 2 seconds of sample time, so go ahead and sample your note. What? You say the note must take about 4 or 5 seconds to decay? No problem. Sample the first 2 seconds and then loop the sample. What? Now you say the sample sustains forever, like an organ, and doesn't stop until you release the key? Easy. Find the decay control on your amplitude EG (Parameter 52) and the sustain control (Parameter 53). Set sustain (53) for 0 (since you don't want the piano to sustain unnaturally) and vary the decay control until the piano sample has a nice, natural sounding decay. And, as long as you are at it, add a little bit of release time (Parameter 54) because when you release the keys on a real piano, it takes a split-second for the sound to die away. Oh, and if you can't find a Bösendorfer, you can try these ideas with the piano sample you received with your Mirage. And, if you want to do that, but are having some trouble keeping straight which sample is which on the factory disk, read last month's article. And, as long as you're doing all this, you might as well start playing with the attack control which will give you some fairly bizarre bowed-piano effects. What the heck, play with all the controls indescriminately.

Okay, now that we've got that out of our system, let's take a look at the filter and the other envelope generator. Don't worry. The hard part is behind us.

A filter is just what it says. It filters out parts of the sound that we don't want, just like a coffee filter filters out coffee grounds. The filter can be very useful for producing rich, full-bodied sounds. Become a filter-achiever.

Anyway, the filter in the Mirage is what's called a low-pass filter (24 db-per-octave, resonant filter for you techno-weenies out there) and its job is to pass the low frequencies, and filter out higher (brighter) frequencies. The effect is that the filter can be used to darken the sound.

The filter in the Mirage is a voltage-controlled filter. It has three connections; an audio input, a control-signal input, and an audio output. (Beginning to sound familiar?) It acts just like a VCA, except that when voltage from the EG is applied to the control input, the sound at the audio output is closer to its maximum brightness, and when less voltage is applied, the sound becomes progressively darker. As a matter of fact, if you filter a sound too heavily, you will get nothing at the output, because you have filtered out all the frequencies. This is sort of like using tin foil for a coffee filter. Caveat Emptor.

Like a VCA, the filter can change across time, gradually brightening and/or darkening a sound. We control these changes with the filter EG, setting the attack, peak (intensity), decay, sustain, and release parameters for the desired effects.

Be aware, though, that the filter and amplifier work together. If you set the filter for a fast decay, the amplifier decay control may seem to have no effect, since, if the sound has already been filtered completely out, there is nothing left for the amplifier to work on.

There are a couple of extra controls on the filter that are not found on the amplifier. The one labelled "Filter Cutoff Frequency" (Parameter 36) sets the initial brightness (or darkness) of the filter. If you wish to use the filter to darken a sample over time, do not set this control too high. It sets the lowest point that the filter can go to - regardless of other settings.

"Filter Q" (or resonance) sets the amplitude of the resonant peak at the filter cutoff point. I like to think of it as "quackiness." Try it and see. It's Parameter 37.

"Filter Tracking" (Parameter 38) allows the filter cutoff to be determined by key number. The effect is that the higher on the keyboard you play, the brighter the sound. This is the way many acoustic instruments act.

Anyway, I realize that this is a lot of information to digest at one sitting. I suggest sitting down with your Mirage, your parameter chart, and this article, and try varying some of these parameters on your factory samples as you go. Before too long you should get the hang of it, and when you do you'll have a basic understanding of the principles of voltage control. These principles apply not only to the Mirage, but to 95% of all synthesizers manufactured to date, so I feel it's pretty worthwhile stuff. Meanwhile, if you get hung up, you can write to me c/o the Hacker. And for further reading, check out SYNTHESIZER BASICS from GPI Publications (publisher of KEYBOARD MAGAZINE). Until next time, "..the knee bone's connected to the thigh bone..."

Clark Salisbury is Product Specialist with Portland Music Co. in Oregon, and is also a partner in "The Midi Connection," a Portland-based consulting firm. He has been actively involved in the composition, performing, and recording of electronic music for over five years, and is currently involved in producing and marketing his own pop-oriented compositions.

USING MIX MODE FOR QUICKER CHANGES AND 48 SOUNDS/DISK

By Tom Darling

Midwest District Sales Manager
Ensoniq Corp

The two questions I hear the most are, "How many sounds can be stored on a disk?" and "Can I change sounds faster than seven seconds?" Well, have no fear, hackers, I have good news for you.

The answer to both these questions can be found in learning how to use the Mix Mode (Parameter 28) to your advantage. This Mix Mode is a much-overlooked feature of the Mirage, which, if used properly, can allow you to store different wavesamples in each of the Mirage's digital oscillators. Check out Sound Disk #2 and you'll see how by calling up Programs L1,

L2, L3, and L4, you get four different synth sounds instantly - and they play on all 61 keys. This is because each of the program variations don't necessarily have to be just different envelope and filter settings on the same sample but can actually hold completely different samples. When you load a lower sound from Sound Disk #2, you are really loading four different synthesizer samples - each of which is stored in one of four lower program variations.

Confusing? A little. Let's get into the "how to" of this. As I hinted above, the secret to this is the Mix Mode. By storing a different sample into each program variation and by using Mix Mode, you can have eight lower and eight upper sounds for each of the three lower and upper sound positions on the disk - 48 sounds in all!

First, load the MASOS Operating System and Sound 3 from the MASOS disk. This configures the Mirage lower and upper memory for eight samples each. This is an even division of memory for each sample. You may wish to change this as you go. Now, call up Lower Wavesample 1. (Make sure Parameter 77 is turned ON.) Now, set Parameter 27 to 1. This is Initial Wavesample. It tells the Mirage which one of the eight wavesamples to play first. Now, we use the Mix Mode. Turn the Mix Mode ON (Parameter 28). Make the sample. We have 32 pages of memory available for each lower wavesample. This is plenty for most synthesizer samples since a synthesizer produces its waveform in the beginning of its sound and then basically just replicates it out over the rest of memory. In fact, many times I've gotten great samples from synths in just one page of memory.

Using the Mix Mode like this, the Mirage will put your first wavesample into Oscillator 1. Oscillator 2 is still empty. Now, go to Lower Wavesample 2 and set the Initial Wavesample (Parameter 27 again) to 2. Make your second sample. This second sample will go to Oscillator 2. Set the top keys of these samples to be whatever you like. You now have the following: If you sampled, say, a brass sound into Wavesample 1 and a clavinet sound into Wavesample 2, you'll have both sounds activated when you call up Sound 1 Lower, Variation L1. Now set Parameter 35 to 00. With the Mod Wheel back you will hear the brass (Oscillator 1), and with the Mod Wheel forward you'll hear the clavinet (Oscillator 2).

With Parameter 35 set between 01 and 31 the key velocity will control the mix of brass and clavinet. Layering can also be achieved by setting Parameter 35 to 00 and putting the Mod Wheel halfway forward. Be sure to set Parameter 34 to around 31 so you get an even volume balance.

By continuing through all eight lower and upper wavesamples in this manner, you can really have eight completely different sounds, lower and upper, at command instantly by just calling up the four lower or upper program variations and then using the Mod Wheel. Amazing eh? Well, there's more - don't forget that when you use the Mod Wheel for a mix of the two samples, you actually get a whole new sound. Also, you should try detuneing Oscillator 2.

Well, that's the long answer to the two short questions. With each seven-second lower or upper load you can actually bring in eight sounds for instant recall. And, each disk can actually store up to 48 different samples.

On a slightly different subject, I've developed a certain technique for sampling synthesizers that you may find quite helpful. I usually do one-page loops. I set the sample time to 30, (33k sample rate) and sample a C note, one octave below middle C. I always allocate as little memory as I think I can get away with. This makes the one-page loops less apt to have clicks.

I hope you found this article useful. I look forward to writing more in the future. Take care and best of sampling!

PLAYING BETWEEN THE KEYS

Keyboard Temperament

By R. H. Lord

A curious phenomena of 20th century music ia a hidden assumption that the equal-tempered scale is the only possible way to tune a musical instrument. Thus, instrument makers and synthesizer manufacturers never consider any alternative. This is sad, because most synthesizers could easily be designed to accept alternate temperaments at the push of a preset, whereas their acoustic counterparts (harpsichord, piano, etc.) take hours to re-tune.

For those unfamiliar with the concept of temperament a brief explanation may be helpful. Temperament is the relationship of the pitch of notes within an octave. Pythagoras understood the tuning of instruments back in early Greece and he developed the concept of the "cicle of fifths." A pure interval of a musical fifth has a pitch ratio of 3/2. In other words, the note that is a fifth above middle C is G and a pure G has a frequency that is 1.5 times that of middle C. If you continue around the circle, jumping back an octave every once in a while so that you are still on the keyboard you will eventually get back to C. Almost.

The fascinating thing is that you don't come out on C, but beyond it. The new "C" is (1.5 EXP 12)/128 or 1.0136 times the original C. This difference is called the Pythagorean Comma, and the object of temperament is to find a way to absorb this error. Pythagoras simply left the error between G# and E and the dissonance that this caused was called the "wolf." Early composers wrote in different keys because each key had its own harmonic structure and "feel." As the centuries passed, musicians tried various schemes to reduce the harshness of the inevitable "wolf" and these all involved ways of distributing the Comma around the circle of fifths. Temperaments such as the Van Zwolle, Rameau, Silbermann, Werkmeister, and Kirnberger were invented to reduce the wolf while maintaining nearly harmonious intervals within chords. Bach wrote his "Well-tempered" pieces for one of these temperaments.

During the nineteenth century, the ability to transpose from key to key became so desirable that the Comma was split into twelfths, equally distributed so that any piece could be transposed to any key. The price we have paid for the flexibility of transposition is that no chord or interval is truly harmonious. Unlike the tight harmonies of a fine string quartet, the modern keyboard has beating pitches throughout.

Much Renaissance and Baroque music sounds very different when played on the temperament in which it was written. The modern synthesizer could provide instant access to dozens of temperaments, but with few exceptions the equal-tempered scale is the only tuning provided or possible because the manufacturer has embedded the pitch tables in the design of the instrument.

SERVICE

Should your Mirage require service, you should contact the dealer where you purchased it first. The following is a list of Authorized Repair Stations which can perform warranty service. (Zip Code order.) We'll be updating this list from time to time.

Mark Rogers
Daddy's Junky Music
361 S. Broadway
Salem, NH 03079
(603) 893-4420

Harry Lerch
Diatonics Inc.
6480 New Hampshire Ave.
Takoma Park, MD 20912
(301) 270-2322

Mark Dopkins
Good Guys
1111 Grand Ave.
St. Paul, MN 55105
(612) 292-9165

Paul Morte
Paul Morte Tech Service
635-K North Eckoff St.
Orange, CA 92668
(714) 634-2371

Tim Flood
Triple S
228 Washington Ave.
Belleville, NJ 07109
(201) 751-0481

Ken Nelms
Wizard Electronics
1438 Tullie Rd.
Atlanta, GA 30329
(404) 325-4891

Mark Kinsman
Music Dealer Service
4700 W. Fullerton
Chicago, IL 60639
(312) 282-8171

Jerry Tietz
Castle Music
5796 Calle Real
Goleta, CA 93117
(805) 964-9827

Dick Sagendore
Only Guitar Shop
Route 9
Clifton Park, NY 12065
(518) 371-1232

Bob Kehres
PI Keyboards
2121 Brookpark Rd.
Cleveland, OH 44134
(216) 741-1400

Bryan Martens
Lightning Music
5545 LBJ Freeway
Dallas, TX 75240
(214) 387-1198

Kerry Kirita
Linear Sound
541 55th St.
Oakland, CA 94100
(415) 652-8378

Charlie Danellut
Medley Music
1041 Lancaster Ave.
Bryn Mawr, PA 19010
(215) 527-3090

Jim Rubino
Rubino's Music
2524 Portage Mall
Portage, IN 46368
(219) 762-3169

Larry Applebaum
Music Tek Service
11914 Ventura Blvd.
Studio City, CA 91604
(818) 506-4055

Ron Pearson
Northwest Organ Service
3411 Division
Spokane, WA 99207
(509) 747-7761

Bob Williams
Washington Music Center
11151 Viers Mill Rd.
Wheaton, MD 20902
(303) 946-8808

RND(♪)

The Post Office delayed and just generally scrambled our mailing of issue #3. If you didn't receive your copy, please give us a call and we'll mail one out. Also, we're all out of issue #2.

BIG NEWS - What with competition and learning curves and all, Ensoniq has announced a price reduction for their sound disks - from $39.95 to $19.95. Elsewhere in this issue you can find reviews for #6, #7, #8, & #9. #10 (harp, guitars, and something referred to as "hot sounds of the 80s") should also be released by the time you read this. They've also effectively cut their price on the blank, formatted disks by making them available in packs of five for $49.95.

Several of Ensoniq's reps and dealers are organizing "sound parties" in various areas. Typical admission fee is a sample for trading. You should contact your dealer for more information. (It's a good idea to check back once in a while anyway - several reps are also dropping off little "not-for-sale" goodies as they travel around.) If folks let us know about these sound parties in time, we'll start publishing a "Calender of Events."

In case you're wondering - our "Letters" and "Questions & Answers" sections haven't gone away. Since most questions are now being inbedded in lengthier letters, we've just thrown everything together under "The Interface."

CLASSIFIEDS

USER GROUPS

M.U.S.E. - Mirage User Group for Elmhurst, IL area. Please contact J. W. Adams, 269 Cayuga, Elmhurst, IL 60126. (312) 834-3779.

San Diego County Ensoniq Mirage Owners: Let's start a user group to exchange sounds and ideas. Call Paul at (619) 942-3027.

SAMPLES

Dallas Area Samplers - please contact Arthur Cronos re swapping samples. Also have DX7 with mucho voices. (214) 980-1000.

Sound Parties for Mirage owners in LA area. For info, call or write Jon St. James, Formula 1 Music, 641 South Palm St., Suite D, La Habra, CA 90631. (213) 691-2710.

FREE CLASSIFIEDS!

Well, - within limits. We're offering free classified advertising (up to 50 words) to all readers for exchanging or selling your sampled sounds on Mirage-readable disks. Additional words, or ads for other products or services, are 15 cents per word.

THE INTERFACE

Dear Transoniq,

I've been using my Mirage to play out every weekend, three or four sets a night since I received it in April (4-13), and so far, no problems.

To keep my disks handy, I keep a piece of duct tape rolled up on the left hand top of the unit and hang them on their corners. Rustic, but it works. I haven't seen any adhesive come off onto the disk case.

The biggest problem I have had with sampling my own sounds is that the final sound usually ends up completely different from the original - nice, but not the same.

One thing that caught me by surprise was when playing aboard a ship the Mirage went crazy. Must have been voltage fluctuations. Same thing happened at an outdoor picnic, but we solved it by running a special extension cord just for the Mirage straight to the generator. I've seen constant-voltage transformers in the music magazines, but the prices were around $500 - which to me is ridiculous.

The magazine (TH) is interesting enough and surely worth the $15!

Thanks,
Jim Molnar
Chicago, IL

Ed.: Many people are discovering that sampling's not like "making a tape recording" - see Clark's article elsewhere in this issue. Probably the first thing to try is setting up the parameters using one of Ensoniq's "plain vanilla" configurations from the MASOS disk. Regarding your power-source problems: Ensoniq's being fairly shy about releasing anything like schematics, so it's kinda hard to guess what's going on. I did find out their specs for line voltage: 105 v to 130 v. Anything outside this could cause problems. The fact that a separate extension cord solved your problem suggests that it may have just been caused by noise on the line. You might try a line filter before spending any big bucks on constant-voltage generators. (A variable transformer may also be a cheaper solution.)

To the editor:

In Issue 3 Tracy Lord's letter complains about having to pay for the Advanced Sampling Guide - adding an additional $50 to the Mirage price tag. Well, I don't like the idea either but I really wouldn't mind so much if I could get a copy of the Guide. When I bought my Mirage on 7/23 there were no guides in stock. I went ahead and paid for one but still have not received it and I am going crazy. I have not

been able to get past the very basics of sampling. If anyone at Ensoniq reads this letter please send AS Guides to Lightning Music in Dallas, TX. Ensoniq's marketing strategies are working - we are all paying the $50 extra. But where are the Sampling Guides??? The Mirage is definitely not working for me without the help of the alleged ASG. Help me, please, Ensoniq!

Ronna Cohen
Dallas, TX

Ed.: We passed this on to the Director of Marketing at Ensoniq. He said that they definitely want to hear about problems like this and that they're trying to take care of glitches in distribution.

Dear Transoniq Hacker,

There are a few questions I have about the Mirage.

1. Can you merge upper and lower memory for longer sampling at max sample rate?

2. Suggested feature: "Loop Repeat Factor" - I've owned my machine for 2 weeks and have filled over 40 disks. On some of my samples I have rythmic figures and it would be nice to tell the CPU to play the loop X times or infinite repeat.

Keep up the good work.

Doug Masla
Los Angeles, CA

Ed.: Unfortunately, the upper and lower memories can't be merged. The "Loop Repeat Factor" is definitely on the "wish list." You're not the only one to request this.

Dear Transoniq,

I'm very happy you've started this - it should make a big difference.

As far as your wish list goes I'd like to see more synth disks such as Matrix 12, Oberheim, Super Jupiter, "MIDIed" combinations. Also Synclavier, Fairlight, etc. And one heading toward a better piano.

I'll be very interested to see how this 12-pole filter and software program works out.

Please start my subscription with your first issue as I don't want to miss anything.

Good Luck,

Del Carry
Frobisher Bay, Canada

Ed.: Ensoniq's starting to crank out the disks faster and faster. We hear that they're already working on additional analog synth sounds. They're also starting to see some competition in this (Data One for one). To get some "unlisted" samples, you might check back with your dealer every so often - Ensoniq's reps are sometimes carrying around and dropping off samples of little bits and pieces they've picked up along the way.

Dear Hacker,

Thank you for the MASOS information that you sent a while back in response to my letter. The information helped convince me to buy my Ensoniq and join the ranks in Transoniq hackland.

I am looking forward to digging into this machine. I cut my teeth on microcomputers in 1975 with an 6800 and have been a fan of 68x processors ever since and am very familiar with the 6809E in the Mirage. I've been disassembling the ROM and am planning to dig into the operating system as soon as time permits.

Question #2 of my previous letter, about temperament seems to require some clarification. I've enclosed a short discourse on what I meant by "temperament" since a fair number of people are not familiar with the concept. I've briefly talked with Steve Coscia at Ensoniq who informs me that temperament is not user programmable. It is unclear to me if this is internal to the Mirage custom LSI chip or whether it is just a matter of internal software. Anyone who can answer that question will be much appreciated. Meanwhile, I'll be looking for that answer myself. Also enclosed is a chart I made to help me understand the interrelationship of parameters. You are welcome to publish either if of use.

My observations after experimenting with sampling, are that the input frequency response starts rolling off at 2-5 kHz and does a fair amount of damage to most "interesting" samples. Attempts to digitize a harpsichord have been grim! I digitized a multi-burst (20, 50, 100, 200, 500, 1k, 2k, 5k, 10k, 20k) signal and found that with the playback filters wide open the response was not limited by the playback hardware, but had the same "response envelope" as the original. This is consistent with the high quality of the samples on the percussion disk. I haven't had the chance to experiment with the 50 kHz plug-in (or even to see one) but the internal sampling hardware is clearly to blame for most of the disappointment that has been expressed. I'm planning to sample externally and download to see what happens. It would be fun to set up software to download from the wavetables in APPLE-Mountain Hardware to Macintosh Concertware software. I'll let you know if I get this going.

I am bothered by at least two questions about the way the Mirage was designed. The first question is not easily solved due to hardware design, the second is a software adaptation and I hope to have enough info to make my own operating system disks in the near future.

1. Wouldn't it have been nice if the architecture that allows two different wavesamples to be "mixed" had also allowed for two sets of envelope parameters. Some very successful sounds have been created using two envelopes. You can use MASOS to make linear ramps with the wavesample data amplitude but this is not too flexible and also compromises the quality of the 8-bit data in the samples (12 bits would be a lot nicer). It may be possible to re-assign voices to four-note polyphonic in software, but I don't see any way to do this with all 8 inputs.

2. It is odd that the loop function works the way that it does. You can either play a sample all the way through once or you can go to an infinite loop (or finite until the oscillator is re-assigned to another pitch). Why not allow you to loop while the key is held down and to break the loop when the key is released to finish the sound? For short loops this would seem much more logical. For long loops it probably wouldn't make as much sense since the end point would be too indeterminate. My proposal is that the loop should be cancelled at key release and the wavepointer just be allowed to increment to the end of the sample from wherever it is.

As you can see, I'm very interested in the insides of the Mirage and am looking forward to finding out more. I'll try to get some of my discoveries on paper and send them along. In the meantime, I'm looking forward to seeing more of your publication. My dealer gave me a copy of issue #2 but I'd like to have a complete set. I understand that #3 has bus pin-outs. I've found most of the signals but would like to have a complete schematic or whatever.

Thanks,

Dick Lord
Durham, NH

Ed.: Thanks so much for the info. We're printing both your chart and your article elsewhere in this issue. Please keep us all posted on your progress! (Are there more like you out there??)

We found out a little more info regarding your temperament question. The Mirage operating system uses a look-up table to calculate the 12 steps of the chromatic scale. This is NOT in ROM or their custom chip. It's loaded from the disk into RAM when the system boots. So, it can be changed - from within the operating system. (It's definitely not the kind of thing anyone can do from "the outside.")

Hi guys -

First of all, congrats and thanks for a so-far very informative and well-put-together newsletter; I look forward to its arrival each month. Since I get much more use out of pre-recorded samples than in trying to get my own, I hope that you can do reviews on diskettes, since several companies are coming out with them now.

I'm one of those studio-only people with an 8-channel deck, who does most everything (except the first track, which is usually percussion) "live to tape" (i.e., without using the sequencer). Visual editing would therefore have little practical appeal to me, I think. Anyway:

Question: Since you can sync the Mirage from a drum machine, can you somehow send a sync/click signal of some form (hopefully one that's cheap to create since I don't own a drum machine) to one channel of the tape deck, and then use the sequencer to record other tracks by syncing them to the sync track? We are NOT talking SMPTE-compatible deck here. If that is possible, I'd like to know how and then I'll get excited about visual editing systems and I'll be asking you guys for product reviews of them.

Another question: Just what is it that makes preset #2 of Ensoniq'a cello/violin sample so lush and reverberant? Is there a parameter or two that can be tweaked to get that kind of sound out of other instrument samples?

If anyone out there is producing diskettes, and cares to know what might sell, this writer would jump at good samples of a string harp, an oboe, or a french horn.

If anyone in San Luis Obispo County, California owns a Mirage and would like to form a user's group and/or swap samples, PLEASE call or write me.

Thanks again. Cheers!

John Bartlett
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(John, see Erick Hailstone's diskette review this issue - maybe you'll want to hear the new Ensoniq diskette #7. Clark Salisbury, HACKER'S hotshot Technical Advisor replies to your questions below - Ed.)

Question #1:

SMPTE is not the only tape synchronization available. Tape sync functions come standard on many commercially available sequencers, drum machines, and computer interfaces these days. This type of syncing requires no special tape deck compatibility other than the sort of simul-sync capability found on any professional or semi-pro multi-track deck. Roland's MSQ-700, TR-707, TR-909, and MPU-401 interface, Yamaha's QX1, Sequential's Drumtraks, Passport's Apple interface and Emu's Drumulator are only a few of the devices I know of that include tape sync capability. If you are looking for an inexpensive tape sync box, I suggest checking out the Korg KMS-30 or the Nano Doc from Garfield Electronics. Either one provides tape syncing along with a few other inputs and outputs for syncing various devices with non-standard clock rates. The Korg also provides MIDI clock inputs and outputs, so it may be a bit easier to use with your Mirage. The KMS-30 retails for $195, the Nano Doc for about $250.

Question #2:

The reverberance that you hear in Program #2 of the cello/violin sample is actually not reverb. It is sort of a synthesized ambience, created by increasing the release time on the envelope generators and it works quite well on any looped sounds. Use parameters #44 and #54 (release). If the value of these parameters is increased, your sample will take longer to decay to zero after you release the keys. See my article in this issue for a more detailed look at envelope generators and their functions.

Clark Salisbury

QUESTION: Can we get on-line?

Ed.: By on-line I suppose you mean being able to read TRANSONIQ HACKER via computer hook-up (either direct or on some already-established computer network). Not yet - maybe later. However, in the very near future, we'll be able to get articles and letters from people via direct hook-up, the Unix Network, and Atari ST or IBM-PC compatible disks.

QUESTION: Is there any danger of blowing out something by using too big a signal for the Audio Input?

Ed.: Yes. The ratings on this input are 100 mv peak-to-peak (mic setting) and 1 v peak-to-peak (line setting). There are protection diodes on the input, but if you submit them to more than about 5 v peak, you may damage something.

QUESTION: Sounds great. Feels funny. Can I upgrade the keyboard?

Ed.: There's not much you can do to the built-in keyboard without risking damaging something. Probably the best bet is to shop around for one of the MIDI keyboards and use it to drive the Mirage. (Better not read "Hypersoniq" this month.)

**DATED MATERIAL
TIME VALUE**

HYPERSONIQ

New Product Releases

The rumor mentioned in last issue's "Random Notes"
about a Visual Editing System for .the Mirage that
runs on the Macintosh is no longer a rumor. Blank
Software has announced that "The Sound Lab" will be
distributed through Ensoniq's dealer network for
$399.95. (We should have much more information by
next issue. Preliminary word-of-mouth comments are
"Wow!")

Ensoniq announces (right here!) the "MIRAGE
MULTISAMPLER" - the rack-mount version of the Mirage.
The rack version will have everything that the
standard version has except the keyboard.   In
addition, it will have three MIDI connections (In,
Out, & Through) instead of two. The operating system
is also being expanded so it will understand
Aftertouch and Breath Controller signals from a DX7
keyboard. List price: $1395.

Ensoniq has also just released Version 2.4 of their
operating system. This should show up on all their
sound disks shipped after the third week in
September. The most important improvement is that
now the Pitch Wheel will have an entire octave of
range. Parameter #22 is now in units of semitones
with twelve being the maximum.