TRANSONIQ HACKER

The Independent Newsletter for Ensoniq Users

USING THE MIRAGE AS A SYNTHESIZER

By Jordon Scott

I think of the Mirage as a synthesizer with the wavesamples being a malleable source for the creation of new sounds. These new sounds can be totally different from the original processed sample and at other times still retain references to its acoustic or synthesized source. One of my favorite pastimes is playing with all the parameter values on the Mirage factory disks. Of course all you serious sampler-type folks have known this for ages, but for the neophyte, here are some great tips for making any factory preset new and interesting without using MASOS or a computer for software based synthesis. Let's call it miraging a sample.

First let's define all the parameters we're talking about. The obvious candidates are in the filter section (40-49), the DCA (50-59) and program parameters (33-38). If you're not into sampling, you probably overlook tweaking the wavesample parameters (60-69). Changing the values of these wavesample parameters can have some of the greatest affect in the creation of a different sound and when changing these you should make sure that you have a back-up of the original safe on disk in case catastrophe strikes. Happens all the time.

I won't go over the importance of the filter and amplifier EGs...they're pretty basic. One comment though about the use of filter peak (P41) and amplitude peak (P51) on some of the Ensoniq factory disks. If these values are set considerably above the velocity values of filter and amplitude peak (P46 and P56), you'll lose a great deal of velocity control over the sound. For lots of velocity control, I leave P41 and P51 at 0 and set P46 at 5 to 15 and P56 around 20. One of the great things about the Mirage EGs is the individual velocity control of each parameter. Remember to adjust the value of each EG parameter on your factory disks. Rule number #1 in synthesizer programming: FOLLOW PROGRAM RECIPIES LOOSELY...ALWAYS FLAVOR TO TASTE (I like stuff with lots of spice). With this rule in mind, I don't think I have ever used an untouched factory sound in my home recordings.

With the dual oscillator system on the Mirage, you can doubleup sounds without loosing voices. Oscillator detune (P33) is a favorite for fattening any sound...use it generously on your factory disk programs. I love varying chorus amount with the mod wheel (set P35 to 0). Some of my best sounds are hybrid sounds discovered by indiscriminately putting on the mix mode (P28) on factory sounds, then fading between them using the mod wheel as the mixer. Velocity mixing (P34) may be preferred in certain advanced civilizations.

Don't be afraid to open the filter (P36,and wavesample parameters 70 & 71) on the factory sounds to add more highs (in fact, try closing it down for an effect). Opening the filter in most cases will raise the noise level and the aliasing in the top octave. This can be reduced handily by scaling the filter decay (P47) and reducing the filter peak (P41). Try filter parameters 46 and 47 set in the 5 to 15 range, with filter peak (P41) set at 0. In this set-up velocity will control the brightness of the sound and filter scaling will reduce aliasing in the upper octave. Sometimes aliasing isn't that bad anyway. You can hide it in the upper range by playing notes close together in a chord and other times it can blend in with the sound quite well. Filter resonance (P37) can become offensive if overdone. Used judiciously on a quick filter release, it adds a great bite. Filter keyboard tracking (P38) is a very coarse control. On factory disks it is usually set to 2 to control our nemesis aliasing. In some cases you can add top end frequencies without damage by raising its value. In all cases, let your ears decide what works best in the particular application.

In This Issue...

MIRAGE:

ESQ-1:

GENERAL:

Now let's get into playing with the wavesample parameters. We should pay special attention here to which wavesample we are playing with. Rule #2 of synthesizer programming: DON'T CHANGE A VALUE UNLESS YOU KNOW WHAT PARAMETER YOU'RE EDITING. When editing Mirage wavesamples this requires special attention! It's easy to locate a wavesample if you follow these procedures: after loading the sound to be edited and selecting the appropriate upper or lower keyboard (make sure you've got the correct one...hit the program button to verify) 1)change Initial wavesample (P27, value 1-8) until the sound you want to edit is the lowest note on the keyboard. If you're dealing with upper keyboard sounds it may still be hidden by the lower keyboard. If not got to step 3. If so, then 2) Get Ensoniq disk #2 and load lower 3, program 4. The rock vamp is on the lowest key and the next key is what we'll be editing. This same lower top key action is accomplished by setting initial wavesample (P27)and lower wavesample (P26) to 8 and changing its top key (P72) to 1). By this action we've also spread the wavesample to be edited across the entire keyboard. The significance of this will be discussed later. Now 3) note the value of the initial wavesample (P27) and change wavesample select (P26) to the same value (as P27). This process is only one way of locating our sample and I'm sure there are better ways. Now we're ready to edit your selected sample....let's have some fun!

One of the best things is changing the octave our sample plays back by adjusting Relative tuning-course (P67). I love transposing sounds down to get unearthly bass sounds. Don't forget to loop sounds that don't sustain in reality (P65). Looping percussive sounds provide discreet repetitions of the sound while holding down a key. I have a sample of an elevator door closing that I had recorded for a soap opera. When looped and transposed up it sounds like a ticking clock. Transposing down, it sounds like clangorous anvils. It's even great spread across the whole keyboard!

Also, don't be afraid to change top key settings (I know you're crying..."NO, NOT THE TOP KEY AGAIN!). By hearing a full keyboard's worth of a sample (set P 72 to 61), you can tell how well it transposes and what range is best suited for it, even if it is just one note. I can usually spread a single synthesizer sample through all five octaves. Spreading a sample of an acoustic instrument over several octaves will obviously distort its original character. It may, however, create an interesting sound that has qualities of its original source and lend itself to easier use in an electronic music environment.

Changing wavesample start and end points (P60 and P61) can be useful for changing the character of the samples attack or release. Moving a sample start point can either cut off a sample attack or move closer to it. Many sounds become static after the attack. Lowering the sample end point will save memory and eliminate the end portion you don't want. On disk #2 from Ensoniq, I wanted to shorten the release of the DX metallic bell-horn sample (bank 1, program 1). Reducing EG parameters 44 and 54 didn't eliminate the horn sound that would still sustain. Answer: move the wavesample end point (P61) from d6 (hex) to 4F (hex). When resetting loop on (P65), the loop points reset at 4E (hex) automatically. Now I just have a nice crisp bell sound that can be sustained without the horn fade in.

If you've had any success at sampling you know that the easiest loops are one page long. As a result many factory sounds utilize single page loops. Many factory disks with one page loops, loop on the page before the last page of the wavesample. A single page loop on the last page of a sample tends to be static and often approaches a sine waveform. If you see that the wavesample you are editing has the same hex number at loop start (P62) and loop end (P63), feel free to change the two parameters to a different value for a new single page loop. By moving down the looping page (very close to wavesample start point), the loop itself may have more harmonic content due to the higher harmonic content of the attack portion. If a sustained loop sounds harmonically simple, this may do the trick. It works great on synthesizer samples with one page loops. Try this on the DX bell sample mentioned above by moving P62 and P63 to page 1 or 2 (from page 4E). The sustained loop sounds more vibrant. By the way, don't try this with loops that are longer than one page. If you loop a sample at one page that wasn't sampled at the appropriate frequency you'll get a demoniac buzz at the loop point.

The Mirage provides great control for sample manipulation and with the variety of factory sounds out in the market, the possibilities are amazing. The sounds you buy should be considered the raw material from which the synthesist refines to his or her need. Just because it says digital sampling keyboard on the Mirage, doesn't mean that it isn't a synthesizer. It certainly could use a new real-time synthesizer operating system to maximize its potential as such. This system might have at least sixteen programs to enable individual programs for all sixteen samples. How about an algorithm that automatically loops single page samples enabling the Mirage to play back any of 256 different single page waveforms and combinations of them and allow separate selection for each oscillator. What about the ability for two samples in mix mode to have separate programs. As it is, the Mirage is a superb synthesizer. And with MASOS we've got great digital synthesis possibilities. To boast further, with my synthesizer disk, I have 16 instantly accessible sounds per disk load (accessed by upper and lower initial wavesample P27) times four program variations for a total of 64 different instant variations (not bad at all...and that's not counting all the hybrid possibilities using the mix mode).

Listed below are the program, EG and wavesample parameters for one of my favorite sounds, a simple variation of Perc Bottle from Ensoniq disk #9. I call it Brazilian Flute because it has a South American feel. It has even more breath in it than the original factory variations with the filter virtually wide open plus there's plenty of velocity control including a release velocity sensing for staccato playing. I'm sure many of you are hiding some great variations on factory sounds....send 'em into the Hacker. As they say in the business, you too can be a star! And remember, Mirage your samples!

BRAZILIAN FLUTE (Variation on Perc Bottle Ensoniq disk #9)

(P27) 1 or 2*	(P38) 2	(P47) 10	(P55) 6
(P28) OFF	(P40) 0	(P48) 5	(P56) 12
(P29) OFF	(P41) 0	(P49) 4	(P57) 10
(P33) 8	(P42) 27	(P50) 16	(P58) 12
(P34) 0	(P43) 0	(P51) 0	(P59) 4
(P35) 1	(P44) 18	(P52) 11	
(P36) 85	(P45) 5	(P53) 8	
(P37) 0	(P46) 6	(P54) 15	

NOTES: *Initial wavesample #1 starts at page 0, #2 starts at page OA(hex). #1 has a sharper, breathy, ringing attack. #2 has a smoother attack.

1) Go ahead and use this sound over the entire keyboard by using technique described above.

2) Make variations by changing values of attack time (P40,50) and release time (P44 ,54). ▬

Bio: Jordan Scott is a studio/engineer at ABC Network in New York where he pushes buttons and edits tape. His introduction to electronic music occurred in 1981 at Syracuse where, while involved in TV-Radio studies, he wandered into the Crouse College Music Lab featuring Moog synthesizer modules, step sequencers and neon beer signs. Currently, he records stuff at home like everyone else in North America.

RND (♪♪♪)

Well, every issue we figure, "This will be the one to bump the page count up to 32." And every month something slides and we're left at 28 pages. However, this will probably be the last one. Our print size is just about at the minimum in every article. (Total word count still raising.) Next month we should have some info on **Ensoniq's** new instruments. If we do, this will necessitate a page increase - don't want to rob space from the others! We also have some new advertisers who may be showing up. This too usually leads to an increase - we try to add an equal amount of editorial content for each increase in ad space. If *BOTH* these things happen, we may actually go to 36 pages. No promises.

* * *

Speaking of the new instruments (and who isn't - except for **Ensoniq**), from what little we've been able to gather from rumors, (this is all hearsay), there will be two new instruments. The first one out will probably be announced near the end of October and will probably be a "super ESQ" type synth. The second is supposedly a 16-bit sampler with at least 2 megabytes of internal memory. It's supposed to be upward compatible for the Mirage Sound Library - so it will probably have the same floppy drive (hopefully, it'll at least be double-sided). Two things we have heard from **Ensoniq**: 1) we (the *Hacker*) will get the information as soon as it becomes available (and we have a very short turn-around time), and 2) most of the rumors are too conservative.

* * *

For something that ought to extend the life of the Mirage another couple years - check out **Triton's** new Mirage operating system in *Hypersoniq*.

* * *

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

* * *

We hereby give permission to any of our subscribers to freely photocopy any of our past issues that we can no longer provide (see our "Back Issues Available" blurb. You're welcome to put ads in our classified or whatever. We still get desperate calls for back issues that we just don't have anymore.

* * *

TRANSONIQ-NET

The following people have agreed to help with questions:

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

ESQ-1 QUESTIONS - Jim Johnson, (602) 821-9266. 5 to 10 p.m. Mountain Time (AZ).

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

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

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

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

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

MIRAGE HARDWARE & FIRMWARE - Scott D. Willingham. Pacific Time (CA). Days. (213) 936-6956.

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.

BACK ISSUES

Back issues are $2. each. (Overseas: $3 each.) Issues 1-8, 11, and 13-18 are no longer available. Subscriptions will be extended an equal number of issues for any issues ordered that are not available at the time we receive your order. ESQ-1 coverage started with Issue Number 13. The first two reprints in our "Quick and Dirty Reprint Series" are now available: MIRAGE OPERATIONS, for $5, and SAMPLE REVIEWS for $4. Each contains material from the first 17 issues.

HYPERSONIQ

NEW PRODUCT RELEASES

Triton announces "SOUNDPROCESS" a new operating system for the Mirage. Using an innovative voice architecture that combines the power of sampling with synthesis, Soundprocess has the capability of providing 48 different memory-resident sounds. Features include four independent oscillators per voice, 32 programs with multiple keyboard splits and 16-channel multi-timbral sound control through MIDI. Soundprocess will be available this fall from Triton. Contact: Triton, PO Box 395, Grand Island, NY 14072.

* * *

Beaverton Digital Systems of Beaverton, Oregon announces the ESQ-1 Editor/Librarian for the Apple Macintosh (tm) computer. This easy to use program incorporates all of the librarian functions of ESQ-1 File (their librarian program), and a full-screen editor that emulates the Ensoniq patch data sheet as seen here in the Hacker and the ESQ-1 manual. Simply click on a parameter, and use the scroll bar to adjust its value. Another unique feature is the ability to copy envelopes, DCA's, LFO's, or OSC's with one mouse stroke - a very fast and painless operation. Data sheets can be printed simply and easily in the same Standard Data Sheet format. Storage of single voices, banks, single sequences, and all sequences is supported. Send on Select, Alphabet Sorting, and patch sifting also available. Suggested list price: $99. Beaverton Digital, PO Box 1626, Beaverton, OR 97075. (503) 641-6260.

* * *

Slithering up from the deep, dark cellar at LEAPING LIZARDS, there emerges THE IGUANA - a MIDI disk drive emulator for the Ensoniq Mirage. The IGUANA is a new operating system for the Mirage that allows you to store all your system exclusive data on a normal Mirage disk. The IGUANA's features include: Edit any of the 64 PATCH REQUEST MESSAGES and store them on disk for later recall, RECORD, SEND, or DELETE sys-ex data in any of the 256 BANKS, load and save 3 files (256 banks each) per disk, adjust MIDI DELAY when sending to slower instruments, use normal formatted Mirage disks, work with all devices capable of MIDI system exclusive transmission, and it reloads the normal Mirage operating system when finished. Out-performs dedicated MIDI disk drives costing hundreds more. Price: $39.95 + $2.50 postage and handling. Available Sept., 1987. Leaping Lizards, 10026 36th Ave. NE, Seattle, WA 98125. (206) 527-3431.

* * *

BLANK SOFTWARE, developer of the industry acclaimed SOUND LAB visual editing system for the Ensoniq Mirage and Apple Macintosh, has announced plans to begin shipping their new SOUND LAB AMIGA version in early October. Sound Lab Amiga will offer all the usual Sound Lab features including special audio processing functions such as compression and interpolation - which are not available on the Mirage alone. Price: $299.95 through Blank Software. 1034 Natoma St, San Francisco, CA 94103. Contact: Marsha Vdovin, (415) 863-9224.

CHANGE OF ADDRESS

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

ESQ-TIPS
PROGRAMMING BRASS SOUNDS

By Jim Johnson

Those of you who are beginning synthesists made a wise choice by buying an ESQ-1 which is one of the few available these days that is both comparable to the Asian digital machines in terms of sound quality, and simple to program. Unfortunately, while there is tons of material available on the theory of synthesizer programming, there's not much around that can teach the beginner how to build a specific sound from scratch. This month, I'd like to tackle that problem by showing how to program the sound of a brass instrument, starting with the ESQ-1's BASIC patch.

The characteristics of brass instruments have been studied extensively. Many scholarly papers have been written about the physical reasons that one type of brass instrument sounds different from another, or why one type of mouthpiece sounds brighter than another, but hey - we're just simple synthesists; all we need is a rough idea of the properties of an instrument, and our ears will do the rest.

Here are some important facts about brass instruments that will help in creating a killer brass sound on the ESQ-1:

1: The basic waveshape of a brass instrument contains both odd and even harmonics. Higher numbered harmonics are lower in amplitude than lower harmonics, and when a note is first blown, the higher harmonics appear more slowly than the lower harmonics. In addition, the higher harmonics become more prominent as the player blows harder.

2: When the note is first blown, a short "blip" occurs in the sound. This is one of the important clues that our ears use to identify the sound of a brass instrument, and is referred to as a "horn blip" by acoustic scientists.

3: The pitch of the instrument is determined by the length of the tube that makes up the instrument, as well as the tension in the player's lips. Lip tension can be very difficult to control precisely, with the result that tired or less than perfect players may be slightly out of tune, or may have a slight waver in pitch.

4: As the player's breath rushes through the instrument, a tiny amount of noise is created by friction between the moving air and the inside of the tube. Also, spit tends to collect in the instrument as it is played, and if too much accumulates, an embarrassing "bubbling" sound can occur, especially at the start of a note or on loud notes.

Armed with this information, we should be able to create any type of brass sound, realistic or not, that we want.

The basic waveshape and the time dependence of the upper harmonics are the easiest elements of the brass sounds to simulate, so it's not surprising that just about every synth, no matter how cheesy, can recreate these effects. For the basic waveshape, a SAW, PULSE, or REED waveform should be used. (SAW sounds best; use the other two for more unusual brass sounds.) For now, use only OSC1, and turn the other two off on their DCA pages.

The ESQ's filter, like just about every other synth's filter these days, is a low pass filter, which means that higher harmonics are attenuated (decreased in volume) from the oscillator's output. As the filter's frequency is increased, more upper harmonics appear in the final sound. By controlling the filter's frequency with an envelope, it's possible to duplicate the time dependence of the upper harmonics. This effect is very easy to achieve, which is why you can hear synthesized "brass" timbres on just about every synthesizer record since the dawn of time. The tough part lies in getting the precise settings needed for a particular application. Start with the filter and ENV3 settings shown in the patch at the end of this article, and adjust the various parameters to get a feel for how each affects the character of the brass sound. Velocity sensitivity on the filter envelope is essential for expressive brass sounds, and it's also a good idea to modulate the filter with PRESS or PEDAL to allow adding dynamic effects after the note is first pressed.

The horn blip is a little bit more challenging, mostly because there are so many different ways to do it. One popular approach is to put a slight "spike" in the oscillator's pitch using an envelope. Steve Porcaro, formerly (I think) of Toto, is much enamored of this method. I didn't use that approach here, but ENV1 is set up to produce such a spike. Increase MOD2 DEPTH on OSC1 and OSC3 to +2 to add this effect to the sound. My favorite method is to create a blip in the sound's volume envelope using ENV4. Try changing the values of L2 and T2 slightly in the example patch; these parameters control the amount of blip that appears in the sound. Other methods include using a spike envelope to introduce a burst of high speed LFO modulation (WAV = TRI, FREQ = 63) into either the oscillators or filter. Of course, combining the different methods works well, too.

The slight pitch variation that is characteristic of a wind instrument is simulated using LFO1 set to provide a slow noise waveform. This is a very subtle effect as programmed here; depending on what type of brass sound you are looking for (realistic, Martian, or somewhere in-between), you might want to substitute a simple vibrato LFO (WAV = TRI, FREQ = 22, MOD = WHEEL) for the noise LFO. Trumpet players sometimes introduce vibrato by shaking the instrument slightly, an effect which can be simulated by routing the WHEEL to OSC1 and OSC3, at a depth of +1. Moving the wheel back and forth a tiny amount will produce a more natural vibrato than an LFO can. (Better yet - if you have a pressure sensitive keyboard, substitute PRESS for WHEEL in this application, so that wiggling your hand on the keyboard produces vibrato.)

The noise and spit effects are simple - use OSC2 as the noise source, and a percussive envelope with a moderate sustain level to control its output level. The rationale behind the settings for OSC2 is explained in my article on noise in the March 1987 (Issue 21) of the Hacker. The percussive envelope adds a bit more bite to the attack phase of the sound.

Now, we've used up two of the ESQ's three oscillators. What to do with the third? This really depends on what type of sound you're looking for. I divide brass sounds into roughly two types - realistic, and "synth brass". (My high school chemistry teacher once told me that there are two types of people - those who divide people into two types, and those who don't.) For realistic brass sounds, I use the third oscillator to "color" the waveform from OSC1. In this mode, FINE should be set to 1 or 0 on OSC3, and LEVEL on DCA3 should be between 50 and 60. Depending on the waveform used on OSC3, a wide variety of subtly different brass sounds can be created. For a more mellow sound, use the SINE, VOICE1, or OCT+5 waveforms; for a brighter sound, use SAW, PULSE, REED, or BASS. (These are just rough guidelines, of course - use whatever sounds good to you.) A muted trumpet effect can be achieved by using the FORMT5 waveform on OSC3 in conjunction with the REED waveform on OSC1. I know I've said this before, but I'll say it again - experimentation is the key here.

For synth brass sounds, set FINE on OSC3 between 3 and 5, use a SAW waveform and set the LEVEL on DCA3 to 63. This produces the nasty chorusing effect that everyone thought was the key to natural sounds in about 1976. Experiment with unusual vibrato arrangements, too.

That's about all I have to say about programming brass sounds. Stay tuned to this spot the next month or two, when I'll fill you in on how to make use of the ESQ's AM (amplitude modulation) function. ■

PROGRAM: BRASSY

	OCT=	SEMI=	FINE=	WAVE=	MOD#1	DEPTH	MOD#2	DEPTH
OSC1	0	0	0	SAW	LFO1	+2	ENV1	0
OSC2	+3	0	0	NOISE3	KBD2	-63	LFO2	+12
OSC3	0	0	1	PULSE	LFO1	+2	ENV1	0

	LEVEL=	OUTPUT=	MOD#1	DEPTH	MOD#2	DEPTH
DCA1	63	ON	*OFF*	0	*OFF*	0
DCA2	0	ON	ENV2	+63	*OFF*	0
DCA3	51	ON	*OFF*	0	*OFF*	0

	FREQ=	Q=	KEYBD=	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	28	0	17	ENV3	+53	PEDAL	+25

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

	FREQ=	RESET=	HUMAN=	WAV=	L1=	DELAY=	L2=	MOD=
LFO1	9	OFF	ON	NOI	63	63	11	*OFF*
LFO2	63	OFF	ON	NOI	63	63	63	*OFF*
LFO3	24	ON	OFF	SAW	63	0	63	*OFF*

	L1=	L2=	L3=	LV=	T1V=	T1=	T2=	T3=	T4=	TK=
ENV1	+63	+2	0	26	0	0	8	26	20	9
ENV2	+63	+48	+44	0	0	1	0	3	20	9
ENV3	+58	+46	+22	60	4	16	19	39	20	0
ENV4	+50	0	+63	30	0	0	3	0	10	0

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

	S/L		LAYER		SPLIT	SPLIT
S/L=	PROGRAM	LAYER=	PROGRAM	SPLIT=	PROGRAM	KEY=
OFF		OFF		OFF		

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

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KALEIDASUND - SAMPLE REVIEWS

By Erick Hailstone

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PRICE: 5-disk sample: $69.95, 25-disk library: $249
FROM: Kaleidasund, Inc., PO Box 290410, Tampa, FL 33687. (813) 229-5173.

This month we have five disks from a company in Florida called Kaleidasund. Gosh, I wish I knew how to pronounce this, or, better yet, what it means. Well, I'm sure someone out there will be writing me a letter to fill me in. This is just one of those instances where you feel like the rest of the world is a tuxedo and you're a pair of brown shoes.

The accompanying literature indicates that you can buy a set of 100 disks for $595, 25 disks for $199 or 5 disks for $69.95. (TH - Kaleidasund says that the 100 disk set is not yet available for the Mirage but will be soon.) For $8.95 plus $2 shipping you can get a sample disk for the Mirage or for one of several other samplers. My guess is they start with something like the Emulator II and then port them over to various samplers, the Mirage being one of them. This notion is also supported by the fact that very few of the Mirage's special features are taken advantage of. The variations of the main samples, although adequate, are nothing spectacular. In fact, unless there is something wrong with my equipment, the pitch and mod wheels are not activated on any of these samples. Even though I'd probably choose the ultimate settings for these controls, I'd still like the manufacturer give me a starting point. Also, there are no accompanying sequences. With a set this large, providing demo sequences is a major task, still by including them the user gains valuable insight into some of the more unusual samples. In spite of these few criticisms, I find the overall quality of these disks quite high and enjoy most of them.

DISK # 0032: BRASS

Sample 1: Brass Hits
Starting at C1 and ending at F2 this sample combines octaves of trumpets and trombones - a quick hit that glisses up slightly at the end. It's less useful in its highest range because it rips by so quickly. You would use this more as an accent in a horn arrangement as opposed to a solo voice. The next octave is unison horns in a quick glissless hit. Going up the keyboard we again have trumpets and trombones in octaves and fifths, attacking and then reattacking, cutting off rapidly. Sort of "Da DA". Played staccato, you get just the first note - legato, the whole sample. This works great for big band arrangements. The last 6 notes are very tight staccato trumpets in unison. None of these sounds are looped and sonic quality is quite high. They are all useful as accents and articulations in a horn arrangement with other horn sounds.

Sample 2: SECTION
Trumpets and trombones in octaves all the way across the keyboard. In the lowest range you're almost below the point of recognizable pitch but useful in an orchestral context. At C4 you can hear a tick at the loop point. At G4 the looping is more noticeable and more so in the top octave. With this type of sound it is VERY hard to avoid looping noise. In spite of this the sample is quite useful.

Sample 3: LICKS
From C to B2 there is a phrase playing the tonic, then a fourth above followed by the flat 3rd above the tonic. Example: [C2], [F2], [E flat 2]. It reminds me of a phrase from a tune called "Mellow Yellow" by Donovan recorded in the 60's. In the lowest octave the phrase sounds like it's being played on quaaludes. From G1 to G2 it is pretty useful. At its highest range the speed of the phrase is so fast that it sounds unnatural unless you're doing cartoon sound tracks. From C3 to the top note there is a phrase that is based on a pentatonic blues lick. The volume fades as the phrase nears its end. After [C5] it sounds like mice scurrying about. In the top octave it is grainy and gritty. Through most of its range, it is a nicely done sound with good fidelity.

DISK # 0033: ELEC KYBD & SYNTH

Sample 1: FX7
I assume that this is a Yamaha DX7. The lower sample (to D#3) is a metallic sound with a suboctave. Gritty with a bit of noise present at the attack. It sustains a bit so you can't play too quickly without the notes ringing into each other. It is a powerful, dramatic sound. The upper sample is a beautiful, bellish sample with synth strings underneath. A little on the dark side, probably to cover up some grittiness. Very useful. In recording I'd probably run it through an aural exciter to liven up the higher frequencies, something I do with many Mirage samples.

Sample 2: T8
The T8 was a synth made by Sequential. It was a $4,000 instrument that is out of production so it's nice to see it preserved on the affordable Mirage. It is a string/brass sound with a percussive attack. The harder you hit the more percussive the attack. It sustains for awhile and the top range is brighter and a bit more metallic. When you press soft and slowly the filter is closed more making things darker. Hit quickly, the sound is brighter and more metallic.

Sample 3: Harpsynclav
The same sound covers the entire range. It is not looped. It's a swirling synth sound with the filter opening when you press hard and darkening with a gentle touch. L2/U2 is a synth/clav. These are rich complex synth sounds that would probably require 2 or 3 synths layered together.

DISK # 0034: PERC/ETHNIC/KYBDS

Sample 1: TYMPS
Tymps cover the entire keyboard. In the low end, wow, it's really down there. You lose a lot of definition of the notes but it's still really effective. From the second octave [C] up you can hear the loop. At [G3] we have a new sample of tymp without looping. This gives you good choices allowing sustained notes and ways of avoiding loops. From [G4] on up it starts to change character. It's still recognizable as a drum and still Tymp-like but with overtones you normally wouldn't hear. It's still a nice sound but more like a steel drum.

Sample 2: DRUMS/SHAKA
The first three notes are a nice solid bass drum with maybe a bit of reverb with gating to fatten things up. The next 2 notes are high hat. They're very crisp and very good. Next, a very deep shell snare drum. Sounds great. From [C2] to [F#3] there are bigger-than-normal electronic sounding tom toms. They sound pretty good up to about [C3]. From [F#4] on up is the Shaka. This is a Japanese bamboo flute playing a phrase. It builds to a slight crescendo with the note squeezed off at the end. This phrase is rather a cliche for this instrument. It reminds me of the TV series "Kung Fu". It's one of those love/hate sounds. I LOVE it.

Sample 3: DigGuit
The low end is a funky bass guitar with a high overtone giving it a lot of definition. If you play soft the attack is slow and the filter is closed giving a warm bowed type sound. Good stuff,

Maynard! The top half gives a percussive string sound when attacked hard but when played soft it is more synthetic. There is also a sub-tone that almost sounds like pads dropping closed on a saxophone. Not MY favorite but a decent sound nonetheless.

DISK #0035: STRINGS/ORCH/KYBDS

Sample 1: STRINGS
Orch string ensemble. If you play notes individually you can hear the looping. Be careful in the upper range. The looping is more apparent because of a ticking sound. When chords are played the looping is hardly apparent. When you play gently you will get a crescendo. The quicker you play the quicker you get the full volume. In spite of this, these are very good strings.

Sample 2: HIT
The lower half is a full orchestra, percussion, strings, brass, flutes, tymps, the works. It stops at [F#3]. It is a quick decaying double forte attack. From [G3] on up there is a rhythmic phrase. It sounds like a few African slit drums being played together. It is looped in time so that a rhythmic phrase repeats as it fades out. It is best in its middle range. This is very well done.

Sample 3: MULTI-BED
This is kind of a combination of an orchestra and synth. It is quite airy. You can almost hear a gong being played with mallets in the background. Looping is noticeable but not very obnoxious. This has an ominous quality. Would be great for a sci-fi film.

DISK #0036: KYBD/VOICE

Sample 1: HARPS
Harps stands for harpsichord. It goes from the lowest note to [G#3]. You could cover the entire keyboard by raising parameter 72 to 61. Make sure you are working with the lower parameters. Although I haven't played a real harpsichord in a long time this sample seems to drop off a little unnaturally, as if a volume slider were pulled back rapidly. Other than that it sounds great. Sounds killer on my Adams Family medleys. The upper half, 2001, is a vocal chorus sound. Rather ethereal, very breathy with a bit of loop noise and some ticking in the upper range.

Sample 2: PIPE
Pipe organ, covering the entire keyboard. This one's really powerful. A little on the dark side. There is no velocity control from the keyboard which is how an organ is. There is looping noise in the upper octave. I'd have to say Ensoniq seems to have a better handle on long sustained sounds regarding looping noise, but the basic stuff here is quite good and with some more effort can only get better.

Sample 3: OOOHH
This is a vocal chorus singing OOOHH, starting an octave below natural range. Still useful in limited applications like film scores, new age space music, etc. Through the middle range it is a useful choir, vocal chorus. Looping is prevalent in the upper range.

This might be impossible for smaller companies but with Ensoniq selling their disks for $10 I would like to see others at that same price. Given that these sounds were probably ported over from another sampler that doesn't seem out of line. The sonic quality is, by and large, excellent and the sounds themselves are interesting. It would be nice to see accompanying sequences. The bottom line: these samples are a welcome addition to my collection. ■

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

REVIEW: Q-SPECTRUM

SOUNDS FOR THE ESQ-1 FROM PATCH/WORKS

By Rick Hall

FOR: ESQ-1
PRODUCT: Q-SPECTRUM
PRICE: 80-voice ROM: $49.95, 80-voice RAM: $69.95, 80-voice cassette: $34.95
FROM: Patch/Works, PO Box 450, New York, NY 10024, (212) 873-2390

The very idea of reviewing sounds for a synthesizer is a notion which strikes me as suspect on a number of counts, not the least of which is the obvious point that a sound which might have applications for one composer may well be useless to the next. That said, it is still true that the recent profusion of sound cartridges for the ESQ-1 does bring with it the inevitable suspicion that some products may be crafted better than others. The problem facing your basic everyday patch reviewer is how to keep one's personal subjective tastes out of the picture, while still providing some kind of intelligent critique for the prospective purchaser. Not an easy proposition for someone who actually uses sounds on a regular basis.

The new collection of sounds in the Patch/Works Q-Spectrum series, compiled by veteran programmer Jed Weaver, provides an interesting case in point. These sounds come in two 80-voice sets available on ROM cartridge or, for a higher price, on user-writable RAM cartridge. You can also purchase them on data cassette or on a librarian disk for use with the Dr.T ESQ-APADE program. I obtained my preliminary versions on data cassette, and experienced no difficulty in transferring them into the ESQ-1.

The Q-Spectrum volumes each contain a variety of sounds, with Weaver taking the approach of trying to offer a little something for everybody, instead of, for instance, offering one bank of bass sounds, another of just keyboards, etc. This is intended to let the user create sequences with all the parts being included in the same bank, including percussion, which strikes me as sensible and cost-effective, given that this is the manner in which the ESQ-1 is most often used.

The patches themselves are instrument-oriented -- you will find few "effects" here, for as Weaver himself states: "...effects, although interesting, have a limited usefulness musically, and making music is what Q-Spectrum is all about." Amen to that, brother -- I think we've got enough helicopters around to last us for awhile...Those effects patches which are included are, to my subjective ears, unusual enough to warrant their inclusion. The other sounds are categorized by instrument groups, including: emulative keyboards (your familiar pianos, electric pianos, organs and the like), "new" keyboards (i.e., keyboardlike inventions), strings, voices (mercifully few), orchestrals, bells, pads of varying descriptions, basses, percussion, brass, exotics, and the ubiquitous "analog" synth sounds.

Now then... if you are sitting there expecting me to tell you whether or not these sounds are "any good", you should immediately take the money you were considering investing in a voice cartridge and run right out and spend it on something that will do you some good -- say, flying lessons. I myself am a composer by trade, and therefore have no idea of what a "bad" sound would be. Okay, okay, I don't mean to sound pompous -- all I'm trying to say is that a lot of stuff gets slagged off unreasonably due to a lack of creative vision in the user...a sound, like any tool, is as useful as you make it. Keeping that in mind, I am glad to tell you what I LIKE. And in the Q-Spectrum group, I like plenty.

First off , I did find that the Volume One was suited a bit more to my tastes than Volume Two. There seemed to me to be a larger variety of sounds at hand, particularly in the percussion group. Volume Two contains more in the analog department, and I perceived several of the patches to be distressingly similar. When I spoke to Jed on the phone about it, he mentioned that this was in part a response to requests that he had received to "put more analog sounds" onto his carts. The ESQ-1 is particularly good at emulating this type of synth, and the analog sounds included here are extraordinarily rich and fat. Still, I would have liked to have seen more options available on Vol. Two -- but,see, this is where personal predilection begins to rear its ugly head. Jed told me that many people have indicated a preference for Vol. Two over Vol. One. Hey, at these prices, might as well get both...

Both volumes contain gorgeous acoustic/electric piano hybrids, some of the best I've heard. When hooked up in stereo, these keyboards compare favorably with my DX-7. On the other hand, the attempts at CLAV, though heroic, still send me back to that instrument. I liked the organ and vibe sounds very much. The percussion sounds are mostly electronic in nature, but at that quite good. I tried layering some of them together, and the results were worth the effort. Most of the brass sounds are velocity sensitive, allowing you to vary the attack for different effects. Also worth mentioning are the string/voice combinations, which I found to be suitably orchestral. My favorite sounds were the exotic instruments, which often had a curiously high-tech flavor added to them.

Full use is made here of the ESQ's stereo output capability, and anyone out there who is still running their instrument in mono (like me) is really missing a large chunk of the action. A good many of these patches utilize automatic LFO-driven stereo panning, which is easy enough to disable if vertigo begins to set in (HINT: don't expect to edit the sounds in any way and then write the edited sound back onto the ROM cartridge. These are Read-Only-Memory carts, which is why they are cheaper. Get a RAM cartridge instead). On some patches, the mod wheel is used to vary timbre or pitch instead of merely adding vibrato, which is a welcome relief. Also, Weaver seems to be one of the few programmers out there who understands and utilizes the Amplitude Modulation capability of the ESQ -- check out the patch POTS 1 on Vol. Two for an example.

Offhand, I'd say a lot of careful hours of hard work went into these patches. They are, to my ears, noticeably richer than many popular collections currently on the market. As I listened through the sounds, I noticed myself frequently muttering "Wow, I didn't know my ESQ could do THAT..." Suffice it to say that many of these have made it into my regular performance and recording banks, which for me is the ultimate recommendation. As the man said, I might not know what Art is, but I know what I like... ■

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

ESQ ABC's

By Sam Mims

Welcome to ESQ ABC's. Don't be put-off by the "ABC's" in the column heading; the purpose of this prose is to help musicians coax every bit of performance from their ESQ-1's (and ESQ-M's) by finding out exactly what their machine can do, and then by applying this newfound mecca of knowledge to programming and performance. What this column is not is a primer on how to get your synthesizer plugged in and making noise. After all, you've already read your manual.

The ESQ synth does some wondrous and amazing things, but for now, let's modulate.

The modulation wheel on most synths allows you to add vibrato to a sound by applying an LFO to modulate the oscillator(s) slightly, thus "wiggling" the pitch. The mod wheel controls the amount of wiggle. Some synths also let you use the wheel to sweep the filter, or perhaps to add tremolo (wiggling the VCA with an LFO).

The ESQ lets you do all of the above, plus much, much more. With the ESQ, we can use the wheel itself as a modulator, instead of using it only to control the depth of another modulator, such as an LFO. So we can take the vibrato setup one step further, and leave out the LFO in the chain, controlling the pitch of the oscillators with the wheel directly. To do this, go to each OSC page on a given sound and set MOD=WHEEL and AMT to anything you feel like, positive or negative. Now you can bend the pitch of the three oscillators wildly in different directions.

But, more practically, you can set the mod wheel up as a second pitch bend wheel, by applying it in equal amounts to all three oscillators. A setting of AMT=+04 will give a whole step bend, +24 will give an octave bend. In other words, each increment is a quartertone. The entire range of the wheel (AMT+=63) will give you an upward bend of two octaves and a fifth (plus a quarter-tone). The pitch bend wheel can only do an octave at most.

This setup is useful if you need to do bends accurately in two different intervals. The main pitch wheel could be set to bend a whole step, while the mod wheel could be set to bend an octave. Note, though, that you can only bend up with the mod wheel (or only down if AMT is negative), and there is no spring return. But this latter point can be a blessing, as the pitch shift can be set to stay at a given level without having to hold the wheel eternally. Now you have instant trasposition of keys (and a great way to cheat on key modulations during a song!).

To control the brightness of a sound using the mod wheel, or to do dramatic filter sweeps, go to the filter page and set MOD=WHEEL, and AMT to some positive number. The effect will be more dramatic with greater values of AMT and with lower values of FREQ (if FREQ=127, then the wheel will have no effect, as the filter is always full open). Note that since FREQ goes up to 127 and MOD AMT only goes to 63, the wheel only sweeps through half of the possible filter range. So tog et the full effect, set both filter modulcators to WHEEL, and set botha mounts to +63 (with FREQ=00).

This effect can also be reversed, using the wheel to darken the sound, by using negative values for AMT. You will need FREQ set to a value significantly greaterthan zero now, as the wheel subtracts rather than adds to this value.

Another nice filter effect is attained by using an LFO as the filter modulator, and by using the mod wheel as the LFO modulator. Now the mod wheel introduces an oscillating shimmer to the filter, either fast or slow depending on the LFO's rate.

In another setup, the mod wheel can be used as a volume control by setting MOD=WHEEL on the DCA pages (DCA's 1,2,and 3 only). At first glance, this seems like no big deal - our ESQ's are already equipped with a fine volume slider. But the mod wheel can be set to control just DCA 1, for example, allowing OSC 1 to be faded in and out of the sound. Try this on Erick Hailstone's "BELLO" patch in April's Hacker (p. 15), for instance. On the DCA 1 page, set LEVEL=00, MOD 1=WHEEL, and AMt=+63. Now the mod wheel brings in the bell sound, while the cellos play all the time.

A tremolo effect is easy to accomplish by using an LFO as a modulator on DCA's 1, 2, and 3, and by using WHEEL as the modulator on that LFO.

One of the most interesting mod wheel effects I've come up with has been a Leslie (rotating speaker) simulation for organ sounds. One LFO is set up to give a slow Leslie effect (always on) by applying it slightly to the VCA's and filter. A second LFO, with MOD=WHEEL, is set at exactly twice the rate of the first LFO, and brought in by the mod wheel to simulate the fast Leslie. (This patch was in the January 1987 Hacker, page 22.)

Finally, for those audiophiles who always play their ESQ's in stereo, the mod wheel can be used to control the panning of a sound. So, you could move your cellos from the center to the right side of the stereo field with a simple turn of the wheel. Note that you can't move a sound from full left to full right this way, as the full range of the wheel only moves it halfway across the stereo field (the wheel only goes 0 to +63 or 0 to -63, not -63 to +63). An interesting effect is to, once again, modulate an LFO with the wheel, and use the LFO as the panning modulator. Now, the mod wheel will introduce a back-and-forth sweeping of the sound, the speed of which is determined by the LFO rate.

So that mod wheel of yours can do much more than vibrato, you see. And all of the effects I've discussed are programmable as part of the sound, so you don't have to mess with setting this up each time you want to use it.

Lastly, here's a free bonus tip. When programming new sounds, or entering sounds from "Hackerpatch", parameters that range from -63 to +63 (such as envelope levels or modulator amounts) can be easily set to 00 by pushing the white "UP" and "DOWN" buttons simultaneously. That can save lots of punching. This tip is right on page 32 of the ESQ manual, but somehow I missed it on the first reading. Maybe you didn't, but then this is a free bonus tip, after all.

I'd be happy to hear from you concerning future topics, problems, or questions; my address is 11116 Aqua Vista, #2, North Hollywood, CA 91602. In the future, we'll be doing splits and more. Until then, keep modulating! ■

Bio: Sam Mims is a performing musician and a member of the LA band MESSENGER. He owns 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.

THE HAPPY HACKER

DIAGNOS: A NEW MIRAGE OPERATING SYSTEM (PART 1)

By Steven Fox

Now that you've bought your Mirage monitor (and if you haven't, why haven't you?) you've probably done some poking around in the operating system. Maybe you changed the temperament, played around switching memory banks, maybe you wrote a simple disk sector read/write routine. Most likely, you did stuff you had first seen other people do, either from an article in Transoniq Hacker or from hacking someone else's code.

Hacking is one way of figuring out how your Mirage works, and at the moment, it's practically the only way since Ensoniq is very stubborn about releasing any information about the Mirage to the general public.

The listings in this article are some basic subroutines which you'll be able to make use of in your own programs or new operating system. In part 2 they will be incorporated in a new operating system, DIAGNOS.

A few tips about entering the routines listed in this article. For those of you who own my program, LEAPING LIZARDS' Mirage Monitor V1.0, you can simply assemble the routines exactly like they are printed here, with no changes. To run the routines use the "^J" command. For example, "^J5100".

If you own UPWARD CONCEPTS' Monitor Disk you will have to enter the hex values only, using the "M" command. Change any JMP $1000 to JMP $0400 to make sure you return back to your monitor. To run the routines use the "J" command, for example, "J 5100".

THE LED DISPLAY

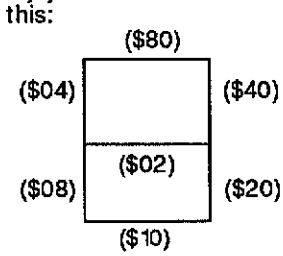
The routine for the LED display resides in the Mirage's ROM at $F33C. But you first need to set up a few things. First, it's not possible to simply take a number or a letter, send it to the LED display routine and have that character appear in the display. Instead, the Mirage ROM has a lookup table which converts a number into the correct bytes to be sent to the LED display routine. The lookup table is located from $FB4D - FB62.

The following routine will take the value in accumulator B and put both the high and low nibble separately through the lookup table. The routine finally stores this new two-byte value at location $BF8A-$BF8B, from where the LED display routine re-loads it. The two-byte number is the number you want to send to the LED display routine, not the original value in accumulator B. By the way, location $0000-$0001 is an arbitrary location, you can store the two-byte number anywhere, as long as you change the routines accordingly.

CONVERT BYTE FOR THE LED DISPLAY

```
., 5000 1F 98      TFR #$98
., 5002 44         LSRA
., 5003 44         LSRA
., 5004 44         LSRA
., 5005 44         LSRA
., 5006 84 0F      ANDA #$0F
., 5008 C4 0F      ANDB #$0F
., 500A CE FB 4D   LDU #$FB4D
., 500D A6 C6      LDA A,U
., 500F E6 C5      LDB B,U
., 5011 FD BF 8A   STD $BF8A
., 5014 39         RTS
```

But what if you want the display to read "HI", or "L7", or some other non-number characters? Then get out your hex calculator and add up the values of the segments of the LED display you want to switch on. The eight segments are valued like this:



0 ($01)

To save you some time, I've made a list of all (I think) of the possible characters and their values:

UPPER CASE LETTERS

```
A = EE      J = 78
C = 9C      L = 1C
E = 9E      O = FC
F = 8E      P = CE
G = BC      S = B6
H = 6E      U = 7C
I = 60
```

LOWER CASE LETTERS

```
b = 3E      n = 2A
c = 1A      o = 3A
d = 7A      r = 0A
g = F6      u = 38
h = 2E      y = 76
```

NUMBERS AND CHARACTERS

```
0 = FC      5 = B6
1 = 60      6 = BE
2 = DA      7 = E0
3 = F2      8 = FE
4 = 66      9 = E6
"1" = 6C
"-" = 02    " " = 00
"." = 01    "?" = CB
```

For example, to display "HI" you would use #$6E60, 6E representing the "H", and 60 representing the "I". For the moment, store the 6E into location $BF8A, and store the 60 into location $BF8B. You'll use this in a minute when you get the display routine running.

Are you with me so far? Now, the following routine will actually light up the display. Run it and see what happens. Remember to store the two-byte number for the display into $BF8A-$BF8B first.

LIGHT UP LED DISPLAY

```
., 5100 86 80      LDA #$80
., 5102 B7 BF 86   STA $BF86
., 5105 BD F3 3F   JSR $F33C
., 5108 7E 10 00   JMP $1000
```

Still one more problem, as you might have found if you ran the routine. With this routine as it is, the display will only light up for a fraction of a second, then it jumps back to your monitor program at $1000. You need a loop to light up the display long enough for you to see it. Try changing the JMP $1000 in line 5108 to JMP $5100 and run the routine again.

The display should show "HI". Great. I hope you saved everything first, because you don't yet have a way to get out of that loop. You're gonna have to re-boot your Mirage. Keep reading.

THE KEYPAD

Reading the keypad is pretty easy. The only problem really is that the values the keypad creates do not correspond to the values you might expect. So you have to test the keypad for each individual key.

READ KEYPAD

```
., 5200 7F B8 00    CLR $B800
., 5203 B6 B8 00    LDA $B800
., 5206 8A 18       ORA #$18
., 5208 B7 E2 01    STA $E201
., 520B B6 E2 01    LDA $E201
., 520E 43          COMA
., 520F 84 E0       ANDA #$E0
., 5211 26 0F       BNE $5222
., 5213 7C B8 00    INC $B800
., 5216 B6 B8 00    LDA $B800
., 5219 81 08       CMPA #$08
., 521B 27 02       BEQ $521F
., 521D 20 E7       BRA $5206
., 521F 86 00       LDA #$00
., 5221 39          RTS
., 5222 BA B8 00    ORA $B800
., 5225 39          RTS
```

The routine above will return the value of the keypad into accumulator A. If A = 0 then no key was pressed.

The following table shows the value of each button on the keypad:

		1 (80)	2 (46)	3 (40)	REC. (26)	SMPL.UP (22)	LOAD UP (20)
		4 (81)	5 (43)	6 (41)	PLAY (23)	SMPL.LO (27)	LOAD LO (21)
PARAM (84)	VALUE (86)	7 (82)	8 (44)	9 (42)	LOAD (24)		
OFF (85)	ON (83)	CANCEL (87)	0/PROG (45)	ENTER (47)	SAVE (25)		

Now to fix that loop you got stuck in earlier. First, enter the READ KEYBOARD listing. Then change the JMP $1000 in line 5108 to JSR $5200 and add the following:

```
., 5108 BD 52 00    JSR $5200
., 510B 81 47       CMPA #$47
., 510D 26 F1       BNE $5100
., 510F 7E 10 00    JMP $1000
```

Now run the routine starting at $5100. You should see "HI" on the display. Now press "ENTER" on the keypad and the display will go blank. You just exited the program and jumped back to your monitor program at $1000.

Now that you've got it working, try making the LED display flash. Replace the LIGHT UP LED DISPLAY routine with the following routine, run it at $5100, and see what happens:

FLASH LED DISPLAY

```
., 5100 BD F3 3F    JSR $F33C
., 5103 BD 52 00    JSR $5200
., 5106 81 47       CMPA #$47
., 5108 26 F6       BNE $5100
., 510A 7E 10 00    JMP $1000
```

THE KEYBOARD

When reading the keyboard you have the problem that every note you press and release sends out a total of six messages (or bytes). The sustain pedal, which is scanned at the same time, sends out two messages, one for on, and one for off.

1: KEY ON (90)
2: NOTE # (00-3C)
3: ATTACK VELOCITY (01-7F)
4: KEY OFF (80)
5: NOTE # (00-3C)
6: RELEASE VELOCITY (01-7F)

SUSTAIN PEDAL ON (88)
SUSTAIN PEDAL OFF (89)

You might have noticed the six note messages almost correspond to the MIDI note-on and note-off messages. The Mirage OS 3.2 software offsets three octaves by adding #$24 to each note #. This is the actual MIDI value of the note.

As you play the keyboard, the six values for each key, plus the two for the sustain pedal, if you use it, are read. They are read, in the order in which they occurred, by reading the VIA shift register. In the following routine the value of the message read is returned in accumulator B. If no key was pressed, then the last message read is re-read.

READ KEYBOARD

```
., 5300 10 8E 00 10    LDY #$0010
., 5304 BD F0 A7       JSR $F0A7
., 5307 B6 E2 0C       LDA $E20C
., 530A 84 FD          ANDA #$FD
., 530C B7 E2 0C       STA $E20C
., 530F 8A 0E          ORA #$0E
., 5311 B7 E2 0C       STA $E20C
., 5314 F6 E2 0A       LDB $E20A
., 5317 39             RTS
```

THE PITCH WHEEL AND THE MOD WHEEL

The pitch wheel and the mod wheel are read by reading location $ECE2. Although they both appear at the same location, it is possible to make one or the other appear separately by setting the appropriate bits in port B of the VIA data register. Both of the following routines return the value of the particular wheel in accumulator B.

READ PITCH WHEEL

```
., 5400 B6 E2 00    LDA $E200
., 5403 84 FB       ANDA #$FB
., 5405 8A 08       ORA #$08
., 5407 B7 E2 00    STA $E200
., 540A F6 EC E2    LDB $ECE2
., 540D 39          RTS
```

READ MODULATION WHEEL

```
., 5500 B6 E2 00     LDA $E200
., 5503 8A 0C        ORA #$0C
., 5505 B7 E2 00     STA $E200
., 5508 F6 EC E2     LDB $ECE2
., 550B 39           RTS
```

Both the pitch wheel and the mod wheel have a range from 00 to FF. The pitch wheel normally centers at 80, and the mod wheel normally sits all the way down at 00.

For practice, use all or some of the routines listed in this article and experiment. Try making the LED display loop exit when middle C is pressed, or when the mod wheel reaches FF.

In Part 2, I will include a listing for a new operating system which will allow you to test all the controllers, keypad, keyboard, and LED display for any faults. It's called DIAGNOS. Until next month, keep your computer screens glowing and keep the "HACKER" in *Transoniq Hacker.* ■

Bio: Steven Fox has been a professional personal computer utilities programmer for several years both in the US and England. His latest venture is LEAPING LIZARDS, which he co-founded with his girlfriend, Cara Villalobos. They sell computer software and trendy jewelry.

THE MIRAGE ECHO MACHINE

By Bryce Inman

A short while ago, I heard a song on the radio which used a nifty echo effect on the handclaps, and, all of a sudden, a light flashed in my head, drawing some rather strange looks from those around me. It occurred to me that there might be a way to achieve this effect on my Mirage without a digital delay. So, armed with bits and pieces of information I'd picked up from past issues of TRANSONIQ HACKER (this has been an unsolicted plug for TH) I sat down at my trusty keyboard and within 10 minutes I found a method that works quite well with just about any percussive sound.

A brief outline of this procedure goes like this: Create a section of memory which has silence followed by a percussive sound (in this case handclaps), assign Wavesample 1 to play only the percussive sound and Wavesample 2 to play both the silence and the percussive sound, and finally, turn mix mode on. Now, when a key is pressed, Wavesample 1 will play the sound immediately but the sound of Wavesample 2 will be delayed because it must first play the silent portion of memory. Thus, an echo effect is produced.

Now let's go through it step by step. Trust me - if I can do it, anybody can. Let's start at the very beginning: BOOT UP WITH MASOS!

Step #1

MAKE THE UPPER HALF OF THE KEYBOARD SILENT

The easiest way that I know of to accomplish this is to sample "nothing." Set Sampling Threshold (76) to 0 so that no input signal is needed to begin sampling. I'm not sure if this is true of all Mirages, but when I leave Line/Mic (75) OFF, its default parameter, I end up with a lot of static. Switching it ON seems to clear this up.

Now press SAMPLE UPPER, then ENTER. At this point the upper half of memory should be (relatively) silent.

Step #2

SPLICE HANDCLAPS TO THE END OF THE SILENCE

For this project I used the claps found with the Rock Drums on Disk #4 - so, load Lower Sound #1 into the Mirage. Make sure you are working with lower memory, then set Wavesample Select (26) to 6 (this is where the claps are located). You may want to double-check to make sure you are in the proper location, so press Relative Tuning (67), change the value and play the claps to make sure they are changing octaves as you change the value.

Now we'll move this wavesample to the end of the silence in the upper half. This sample occupies 80 to FF (hex) in the lower memory. You can verify this by checking Wavesample Start (60) and Wavesample End (61). So, set the pointer accordingly - Source Start (85) = 80 and Source End (87) = FF. We're going to put this in the same area of upper memory so set Destination Start (89) to 80. Last item - set Destination Bank (94) to UP (upper).

Okay, buckle up, because we're going to move that sample. Press the MASOS function key (LOAD SEQ), then Key #1 (Copy Data), then ENTER. Now we have a wavesample that begins with silence followed by handclaps. When playing a key to verify this, be sure to hold it down for a second or two to allow time for the entire wavesample to play. I found that B, one octave from the top, sounds pretty close to the original.

At this point, you may wish to copy the lower program to upper. Make sure you are still working in lower memory, press Copy Program to Upper (16), then #1 (to send it to upper program #1) then ENTER. If you do this, you'll need to adjust the delay time for both the filter and amplitude so you'll be able to hear the entire wavesample before the envelope closes. Set both of the Decays (42) and (52) to about 25 (make sure you're in upper memory).

Step #3

ASSIGN WAVESAMPLES

Assign wavesample 1 to play only the claps. Make sure Wavesample Select (26) is set to 1 then set Wavesample Start (60) to 80. Now when you press a key the claps should play immediately.

Wavesample 2 should already be set up but you can check this by changing Wavesample Select (26) to 2 and making sure Wavesample Start (60) = 00 and Wavesample End (61) = FF.

To hear both wavesamples turn Mix Mode (28) ON and set Osc Mix (34) to 31. When you press a key you should hear two claps.

Step #4

ADJUST ECHO RATE AND LEVEL

The final two adjustments are ones which will vary according to taste and specific applications.

The first adjustment is the time between the first claps and the echo. To do this we simply adjust the amount of silence that is played by Wavesample 2. Set Wavesample Select (26) to 2 and change Wavesample Start (60) to about 60. The closer this value is set to 80 (the beginning of the handclaps) the shorter the time between the two claps.

The second adjustment is the volume of the echo. To make the echo quieter simply lower the value of Osc Mix (34). I found a value of about 14 worked for my purposes.

TO MAKE A LONG STORY EVEN LONGER...

I've found this procedure to work well with many different sounds but before you begin experimenting you should keep in mind a few limitations:

1. In cases like the one with which we have been working, the handclaps cannot be reinserted with the lower drums since the Mix Mode (28) must be ON in order for the echo to work.

2. This method won't work with wavesamples that occupy the entire memory since there is no room for inserting silence.

3. Applying this method to sounds which already use Mix Mode could lead to unwanted results.

Okay - so this won't replace a digital delay, but for many applications it's a whole lot cheaper. Mirage owners - go forth and echo - echo! ■

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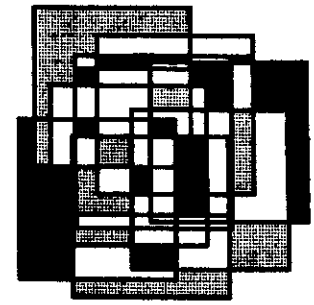

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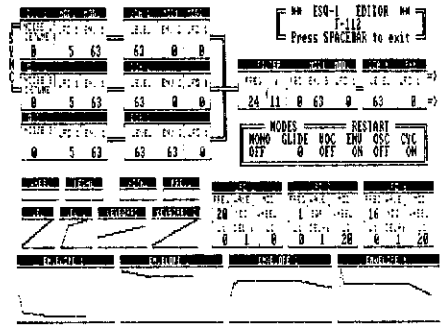

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THE HACKING PART...

This month's patch, by Peter Sturges, is Mellotron/Flute - "MLOFLT". It's best in the middle three octaves with a sound quite similar to the opening phrase of the Beatles' "*Strawberry Fields Forever.*" "MLOFLT" stands by itself quite nicely and what I have chosen to do here is add a slight variation using the wheel. Start with LFO1 and turn the MOD OFF. Go to OSC3 and change the fine tuning to 0. Change the second MOD to WHEEL. You could also use the CV pedal to do this. Set the Modulation to -24. When you push the wheel all the way forward OSC3 will now drop an octave. Go to DCA3 and set MOD2 to the wheel. I have set its level to +07. Try experimenting with this setting. The higher you set it, the louder this lower octave will be.

Now, let's alter DCA1 by changing MOD2 to WHEEL and setting its value to +10. This will bring its volume up with the motion of the wheel. It adds a bit more edge to the entire sound. Again, you might experiment with this level to find the setting right for your application. These slight alterations to a good basic sound might be useful for some of your other patches.

Erick Hailstone
The MIDI Connection

THE PATCHING PART...

PROGRAM: TUBES

By Charles R. Fischer ***(Mescal Music)***

TUBES provides a metallic sweep similar to a flanger with maximum regeneration. While not for a top-40 act, it's great for soundtracks or Halloween parties! Some people may prefer a longer release time - try raising T4 to the 40's.

PROGRAM: MLOFLT

By Peter Sturges

MLOFLT was created for "*Strawberry Fields Forever*" and some Moody Blues songs. The VOICE 1 and E PNO2 waveforms add that famous Mellotron metallic edge that helps the sound cut through the mix. This patch sounds best in the middle three octaves of the keyboard.

PROGRAM: WHSLR

By Jim Grimes ***(ESQUG-WEST)***

WHSLR is very close to a human whistler - the type of melodic whistling you hear on recordings. A little parameter tweeking will turn this patch into a Penny Slide Whistle. MONO = ON, Glide = around 16. Of course, you may want to reduce LFO to a smaller number. A nice echo can be added (as with ANY patch) by setting T4 on any ENV to a number around 35-45.

PROGRAM: NICER

By Mike Peake ***(PSYCHE SHRIEK)***

The "rootless" feel comes from OSC 1 being tuned to a perfect fourth four octaves below the strong fundamental OSC 2. OSC 3 is a bell tone that has delayed square wave vibrato for an unusual feel. OSC's 1 & 2 are then modulated by a separate vibrato. Try OSC 1 with different semi tunings, waveforms, and volumes. I usually play staggered chords, like strumming a guitar, wherever I feel a tune needs sparkle.

ESQ-1 PROG TUBES

BY: CHARLES FISCHER

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

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	36	ON	LFO1	-63	OFF	-
DCA 2	36	ON	LFO1	63	OFF	-
DCA 3	36	ON	LFO3	63	OFF	-

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

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	5	OFF	ON	TRI	63	-	63	-
LFO 2	-	OFF	ON	-	-	-	-	-
LFO 3	7	OFF	ON	TRI	63	-	63	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	63	63	0	0	0	0	0	20	0

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

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

ESQ-1 PROG MLOFLT

BY: PETER STURGES

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	VOICE 1	LFO1	1	ENV1	63
OSC 2	0	0	2	SINE	LFO1	2	LFO2	1
OSC 3	0	0	3	E PNO2	LFO1	1	LFO3	1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	30	ON	LFO2	28	KBD2	-20
DCA 2	63	ON	KBD	47	LFO3	23
DCA 3	44	ON	LFO1	24	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	34	9	23	ENV3	27	VEL	3

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	15	OFF	ON	TRI	0	26	6	WHEEL
LFO 2	21	OFF	ON	TRI	0	29	10	KBD 2
LFO 3	15	OFF	ON	TRI	0	29	1	VEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	11	6	0	16	33	6	3	6	0	0
ENV 2	63	36	29	0	0	0	49	63	12	9
ENV 3	62	45	17	0	22	3	11	63	37	9
ENV 4	63	63	63	10	1	12	17	63	8	9

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

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

ESQ-1 PROG WHSLR

BY: JIM GRIMES, ESQUG-WEST

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	1	0	0	SINE	LFO1	6	ENV1	14
OSC 2	1	0	0	OCT	ENV1	63	OFF	0
OSC 3	1	0	3	SINE	LFO1	63	LFO1	1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	43	ON	ENV1	63	LFO1	-22
DCA 2	37	OFF	OFF	-	OFF	-
DCA 3	42	ON	ENV3	16	KBD	18

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	25	0	63	ENV3	61	LFO1	1

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	0*

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	29	OFF	ON	TRI	0	1	5	OFF
LFO 2	0	OFF	ON	TRI	0	0	0	OFF
LFO 3	45	OFF	OFF	TRI	4	52	19	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	13	0	0	63	0	0	6	63	21	9
ENV 2	63	50	45	0	0	0	50	63	20	9
ENV 3	26	42	23	5	7	63	35	0	0	7
ENV 4	54	63	63	5	0	28	47	54	20	9

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	20	ON	ON	ON	OFF

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

ESQ-1 PROG NICER

BY: MIKE PEAKE, PSYCHE SHRIEK

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-2	5	0	4 OCTS	LFO2	1	OFF	-
OSC 2	2	0	0	EL PNO	LFO2	1	OFF	-
OSC 3	3	0	0	SYNTH1	LFO1	21	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	47	ON	OFF	-	OFF	-
DCA 2	63	ON	ENV2	11	OFF	-
DCA 3	36	ON	ENV1	63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	127	18	0	ENV3	63	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	32	ON	OFF	SQR	0	1	63	OFF
LFO 2	21	OFF	ON	TRI	0	0	0	WHEEL
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	63	24	0	0	0	17	5	39	9
ENV 2	63	63	0	0	0	49	3	1	0	0
ENV 3	63	63	0	26	0	0	4	0	0	0
ENV 4	63	54	57	0	0	0	26	15	44	13

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

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

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ESQ-1: DRESSED TO DISTURB! HEAR PSYCHE SHRIEK'S 80 Uniques: (213) 656-3515. DEMO TAPE: $3.00. OWN 80: $30 on cassette, $80 on RAM cart. Includes tips, hints, adoption paprers! Check/money order: Don Peake Music, Inc., 3960 Laurel Canyon Blvd., Suite 353, Studio City, CA 91604. YOW!

Ensoniq ESQ-1 Owners, buy the best. Volume 1: 40 exceptional sound programs. Only $19.95 for data cassette and program sheets; also tips for effects processing, splits/layers. Quick Delivery! Dark Horse Music, PO Box 295, Crested Butte, CO 81224.

PATCH UPDATES

VOICE CRYSTAL UPGRADE #2-A3-2.1
MODEL: VC2
PATCH: CLASSIC
LOCATION: BANK A3
OSC 2: FINE=00
OSC 3: FINE=00, WAVE=BASS 2, MOD#2=LFO1, DEPTH= -02
FILTER: Q=01, KEYBD=25
LFO 1: FREQ=00, WAVE=SAW, L1=04, DELAY=09, L2=00
ENV 1: L2= -11, LV=32
ENV 2: T2=29, T3=29
ENV 4: LV=36
NOTE: Provides a more natural classical guitar timbre.

SEQUENCES

For expanded ESQ-1 and Drumulator format drum machine. ^ Frank Sinatra standards - That's Life, Summer Wind, Tramp, Kick, Strangers, and Come Fly. 2 Dumps of data on cassette: US $40.00. Also other 50's and 60's lounge tunes, all hits. P. Sturges, 6544 Imperial St., Burnaby, BC, Canada U5E-1M8.

SERVICES

If you need many different sounds instantaneously, and can't afford $269 to $400 for a memory expansion, and you don't have the time or patience for customizing your disks, then give me a call and for as low as $2 per wavesample I'll do the job! Call or write: Jack C. Loesch. 201-264-3512 after 6 pm Eastern time. 162 Maple Pl., Keyport, NJ 07735.

ACCESSORIES

THE MIRAGE MEMORY EXPANDER (MME) transforms your Mirage into a Turbo-Mirage. Imagine having 10 fully independent sound banks available at the touch of a button for live performance. Consider the power of instant A-B comparisons when sampling or programming sounds. The MME installs easily in 1 hour and comes complete with installation instructions. All this for only $269. So call or write today to: Virtual Engineering Corp., 2004 Fernwood Road, Victoria, BC, Canada V8T 2Y9. (604) 537-2476.

Protect vulnerable key contacts from dust, dirt, and cat hair with a CUSTOM COVER for the Mirage, ESQ-1, Mirage DSK, SPD-1 and most popular synths and samplers. Made of durable black double-stitched poly/cotton - NOT plastic. Sizes change - please include the serial number of your synth. Send $19.95 + $2.00 p/h to: STAR COVER, 520 Mildas Drive, Malibu, CA 90265. (Calif. residents add 6%.)

INSTRUCTION

MIRAGE VIDEO INSTRUCTIONAL TAPES. MIRAGE TECHNIQUES VOL 1. Basic operational functions, parameter functions, basic sampling, multi-sampling, basic MASOS functions, moving wavesamples, making performance disks, tips and tricks.... BONUS!!! Also hear demonstrations of M.U.G. sounds. (Approx. 70 min.) MIRAGE PRODUCTS REVIEW VIDEO VOL. 2. A hands-on experience visually translated. The following companies' products will be reviewed: Ensoniq VES for Apple II+/E and Commodore 64/128. Turtle Beach Softworks' Vision for IBM PC/XT, AT or compatible. Blank Software's Soundlab for Apple Macintosh. Neo-Sync Labs' Mirage-Aid for Commodore 64/128 and Apple. Black Squirrel Software's MIDI Additive Software Synthesis for Apple II. Upward Concepts' Multi-Temperament Disk and User-Defined Micro-Tonal Scales. Ensoniq Sound Libraries Vol. A and B. Disks 100, 101, 102, FMT-2, C-1, C-2. K-Muse Sound Libraries Select Strings and Killer Comps. NON-MEMBERS: $29.95 each video. M.U.G. members: $19.95 each video. Include $3 shipping and handling. NY State residents add 8.25% tax. Specify Beta or VHS. Checks or MO payable: G-4 Productions, 622 Odell Ave., Yonkers, NY 10710.

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Well, - within limits. We're offering free classified advertising (up to 40 words) to all subscribers for your sampled sounds or patches. Additional words, or ads for other products or services, are 20 cents per word per issue. (Unless renewed, freebie ads are removed after 3 issues.) While you're welcome to resell copyrighted sounds and programs that you no longer have any use for, ads for *copies* of copyrighted material will not be accepted.

THE INTERFACE

Letters for The Interface may be sent to any of the following addresses:
U.S. Mail - The Interface, Transoniq Hacker, 5047 SW 26th Dr., Portland, OR 97201
Electronic mail - GEnie Network: TRANSONIQ, CompuServe: 73260,3353, or PAN: TRANSONIQ.

Dear Hacker:

Responding to a Monster Dan (that's us) sequence inquiry a couple of weeks ago we had some communication with a customer wondering if these sequences and patches would play properly if his ESQ-1 had the latest operating system. Until then I had installed quite a number of Version 2.2 EPROMS and never received any complaints about anything remotely close to this, so I wasn't sure what to think. Version 2.3 had just arrived, so I checked it out - all seemed OK.

Version 2.0 had been working just fine for us, so I never allocated 2.2 chips for our two ESQ-1s. A day or two later Dan and I both had some problems with some old sequences that used to play fine. The symptoms were "voice-robbing" type problems where parts would get pinched off prematurely, or notes wouldn't decay clear through the normal release of the patch. This would occur even when there were less than eight parts playing.

With operating systems 1.70 and 2.0, you could turn the Mix Level (on MIDI/Mix page) to "OFF" and the system would not process these note on commands at all. We use this feature to include some little sweetening parts in our sequence data even if there isn't a voice available internally to play the part. Any track with a Mix Level set to "OFF" has a part that may be assigned to MIDI status and routed to an external synth via the interface.

Operating systems 2.2 and 2.3 don't treat these tracks the same way. The system still processes the Note On commands, and execution of these parts will be attempted by any available output circuits even if the output VCA's are completely off. The solution is to assign track status to MIDI, or erase the part.

Everything else about Version 2.3 is real nice - especially the new factory programs that come up in the internal banks when a reset is performed. Now I have people asking if they could get an operating system chip set burned with their own patches on it. Why not!? I'm going to work on that when I get the inspiration to experiment.

Larry Church dba Musician's Bench
President, DANLAR MUSIC
Tualatin, OR

[Ensoniq's response - The changes involving Track MIX settings in O.S. Ver. 2.2 and higher were made to accommodate the added feature that allows for the use of the foot pedal as a volume control. The ESQ-1 must start a voice even if Track MIX = OFF so that the pedal can be used to fade notes in from silence.]

Dear Hacker or Ensoniq,

A question and a suggestion regarding ESQ-1 operating systems - first, the question. I just had version 2.2 installed in my ESQ1, and now you've come out with Version 2.3. The update documentation for the two versions appears to be identical, though. What's the difference?

And, when Version 2.4 comes out, here's a feature that you (presumably) hadn't thought of, but which should be easy to implement and would leave me and every other ESQ owner tickled pink. How about altering the BANK COPY routines on the STORAGE page so that program numbers on the SPLIT/LAYER page are automatically adjusted to point to the new bank whenever a bank is transferred from internal memory to the cartridge, and vice versa? In other words, let's say I've got a sound in the internal bank that references Patch #1 on the SPLIT/LAYER page, and I transfer the internal bank to Cartridge A. Currently, I have to manually change the patch to #41 after the transfer is made, but your processor should be able to do this a lot faster than I can, no?

Jim Johnson
Chandler, AZ

[Ensoniq's response - ESQ-1 O.S. version 2.3 fixed a minor sequencer bug which caused the display to show the wrong bar number when using the GOTO command in very long sequences. In addition, version 2.3 will reload the 40 internal factory programs when the ESQ-1 is re-initialized (instead of BRASS1). Aside from these two minor changes, version 2.2 and 2.3 are identical.]

Dear Readers:

There were two reviews of Sonic Editor for the Atari ST in Issue 25. I did indeed draft the manual, so I wish to discuss a few points in the reviews.

First, my middle initial remains "K" as in "Keith", not "R" (this was due to a typo in the manual). I prepared an index that was organized along the lines of the pull-down menus. Unfortunately, I think that it was squeezed out to keep the page count even for ease in publishing. If anyone would like to see this index, drop your friendly editors a message to that effect.

Mr. Seeley wrote that the manual was "vague and confusing," yet Mr. Scott found it "superb." Manual legibility is such a subjective judgement that a reviewer should express such thoughts as being HIS OR HER OPINION. As for being too "tech-y," this manual details a program that essentially does digital signal processing. People get doctorates in the field, so it's hard to avoid getting technical with a visual editing program.

I really must take exception to Mr. Seeley's query as to, "When will software makers start writing decent manuals for real musicians?" I put a huge amount of effort into writing the manual; Dean Neufeld (the programmer) and Sonus were kind enough to take a chance on someone with a minor writing reputation (Electronic Musician, The Hacker) to put together a comprehensive document. If you don't like my prose, that's understandable, but give Dean and Sonus the credit for trying to produce a useful manual. In fact, I think (note - expression of opinion here) that most people somehow want no manual at all. Most users just dive right into a program without touching the documentation. When something unexpected happens, they blame the manual or the software.

Mr. Scott would like to see computer editing of the top key parameters. Alas, the MIDI implementation in the ASG states that, "no wavesample control parameters [sample start and end pointers, parameters 60-65 plus 67-72, 72 is the top key] should be changed externally. The Mirage performs internal housekeeping tasks when any of these values are changed." These parameters CAN be changed with system exclusive "front panel" commands, however. Perhaps a Sonic Editor update could include a simple keyboard display and allow top key editing with front panel commands. In fact, that's how Sonic Editor alters wavesample boundaries. Sampling parameters (73-77 and 93-94) could be treated in the same fashion in an update.

Digital EQ would certainly be handy in a program such as this, but the math and processing to implement it would have

added too much to the cost. I agree that my crossfade looping procedures are long and tricky. I've suggested that an update include an automated procedure something like this: the user would look at the plots, rotate to line up a zero crossing, then select the regions to be crossfaded; the computer would then calculate all the necessary MASOS commands, send them to the Mirage, then set the loop switch. The Mirage disk drive can be computer-controlled via sysex front panel commands, but I personally never thought it to be useful. If enough users would like computer control, I believe it could be included in an update.

Walter K. Daniel
Hanover, MD

[TH - We're always glad to see some response to our reviewers' opinions. It always spooks us a little to broadcast all sorts of very strong opinions out there and not hear much dissent. As far as the reviewers not raising a "This-is-my-opinion" flag - we see no need for this. Other than straight factual statements of the sort, "Product X has feature Y," everything that every reviewer everywhere says is opinion. We trust the readers to develop their own personal adjustment factor for any particular reviewer.]

Dear Transoniq Hacker,

Your publication is great and after seeing the Mirage being used to save ESQ-1 sounds on its disk I support your coverage of both of them. I have a few questions that I need some answers to and would appreciate your help.

1. I am using the Mirage as my keyboard controller and also have a Yamaha TX7 and FB01 hooked up to it as well as an Atari ST computer. My problem is that I am using editing software with both of the Yamaha synths and when trying to send a patch through the Mirage it starts loading a sound from the disk and giving me MIDI error on the Yamahas. I have tried changing parameter 80, 82, 83, 84 but it still happens. Is there a way around this without spending money (even though I am planning to get a Yamaha MCJ8 soon)?

2. I own a Teddy Ruxpin talking doll along with his pal Grubby and yes, it is my little girl's, not really mine! I was wondering if it was possible to sample the cassettes that it uses for it to work? There is sound on the left channel and data on the right (R/L?) that controls Teddy's and Grubby's mouth and eyes and I thought that I could make my own personalized tapes for my little girl. If this is possible could explain how to do it or sell me the sampled disk that you have made?

3. I bought the Sonic Editor for the Mirage and was very unsatisfied that you can't save the program on an ST disk along with the waveform. This would give us BBS users a better way of exchanging public domain sounds for the Mirage. Do you know if they are going to upgrade it any with a new revision? I am also excited about the Digidesign program coming out for the ST! If anyone wants to see the ST put to use then check out the DX Android from Hybrid Arts, Sonus Masterpiece or any of DR. T's Caged Artist editing software. They are all worth the money!

4. I have Genpatch from Hybrid Arts and was also wondering if there is a way of sending and receiving "ALL" wavesamples along with the program information to a ST disk? I am not that familiar with the program yet and thought there was a Configuration file that you could make for doing this.

Thanks in advance!!!
Michael Luckeroth
22 South Meadow Dr.
Glen Burnie, MD 21061

[TH - re #3 - Digidesign"s Atari ST Softsynth is being reviewed for the Hacker by Jordan Scott even as this is being typed. Crazy ol' world.]

[Ensoniq's response - Question 1: When your editing software sends patch data, it is obviously sending a program change message which the Mirage reads as a disk load command. Upon receiving this message, the Mirage disk drive will immediately begin to load and will subsequently stop passing on MIDI information. If you set Mirage parameter #84 (MIDI Function Enable) to 1 (the default value is 2), the Mirage will ignore the program change message which instructs the disk drive to begin loading. You may also want to store this change to your boot-up disk with the Save Configuration Parameters (14) function. Then whenever you boot the Mirage with that disk, parameter 84 will default to a value of 1.

Question 2: While we aren't specifically familiar with what makes Teddy and Grubby tick (or talk), it's likely that there is some type of digital control code involved here that Teddy understands but the Mirage doesn't.]

Dear Sirs,

I was was wondering if you could advise me on the purchase of a patch-sequencer-librarian for a Commodore-64 and Sonus interface. I also have a DX7 II FD. If the same librarian could work both units it would be really nice.

Tom Roehl
Milwaukee, WI

[Ensoniq's response - There are a number ESQ-1 patch librarians available for the C-64 including ones from Blank Software, Valhala Sound Products and Still Voice Audio. You will need to contact specific manufacturers to determine interface compatibility.]

Dear Transoniq Hacker

I have an ESQ-1 and an Amiga - lots of fun with "Deluxe Music", but where are the patch data storage programs (or any MIDI ESQ-specific access like MAC even C-64)?

I might even buy a Mirage if someone wrote something like "Vision" for the Amiga!

Sincerely,
Daniel J Lers
San Angelo, TX

[TH - Check out Blank Software, distributed now by Dr. T, for Amiga software for the Mirage. (See Hypersoniq.) We don't know of any Amiga software for the ESQ-1. (Yet.)]

[Ensoniq's response - We are not aware of any ESQ-1 librarians available for the Amiga. Perhaps the Hacker has heard something.]

Dear Transoniq Hacker:

Can you provide any clues or information (schematics, illustrations) on what the ESQ-1 expects to see at the pedal controller jack? I'd like to use a volume pedal but the typical "in line resistor" type of pedal just won't cut it. Any suggestions on how I can modify this type of pedal (to use it in the CV jack) or do I have to lay out big bucks for one designed for the jack?

Thanks,
Terry Wysocki
Covina, CA
(818) 966-2247

[Ensoniq's response - Here are the specs for the ESQ-1 CV pedal jack as found on page 4 of the ESQ-1 Musician's Manual:

3 conductor; (Tip = control voltage input, Ring = 2 kohm resistor to + 12 volts, Sleeve = ground). 500 kohm 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.

The Ensoniq Control Voltage pedal for the ESQ-1 (model CVP-1) is $29.95.]

Dear Sirs,

Thanks for the superb job you've done with a great idea! It has proved itself invaluable in helping me sort out the technical aspects of my ESQ-1/Mirage combo.

One question: What about cleaning the disk drive? The authorized service center in my area (Omaha, NE) suggested no cleaning with commercially available kits. Since I perform 4-6 nights per week, I'm getting a little concerned about what forms of dirt are getting inside the drive. Any suggestions on maintaining a cleaning schedule?

Thanks again for all your help!

Sincerely,
Joe Raven,
Cedar Rapids IA.

[Ensoniq's response - Because of the inherent abrasive nature of commercial disk drive cleaners, we do not recommend a schedule of regular cleaning and would only suggest the use of solution cleaner in the event that you are experiencing repeated disk error messages.

You may also want to periodically copy all your sound data to brand new diskettes as this will help prevent the build-up of dirt and magnetic particles on the drive heads.]

Dear Transoniq,

I am an owner of an ESQ-1 and a Yamaha MDF-1 MIDI Disk Drive. I appreciate very much the ESQ-1 (Vers 2.2), and the MDF-1 is very useful especially for sequences. But because of the way I work with these instruments, I find it impractical to often save and load my 1,000 patches.

Actually, I have two EEprom cartridges and I would like to have more. The problem I have now is the high price of EEprom cartridges with patches. My question: where can I purchase 10 or more blank cartridges at a low price? And how much? It is truly a pleasure for me to create new sounds and change the sounds I have. I live in Canada and no dealer can answer my question. Can you?

For me, the best way to use the MDF-1 is to save and load sequences which I change constantly and to use the cartridges for sounds because then I can find them faster and easier.

Thank you in advance for your answer.

Gillis Brissette,
Quebec, Canada

[TH - We've heard rumors of some new sources of bulk EEproms. Watch our ads.]

Dear Hacker:

I own both a Mirage and an ESQ-1 and I am very pleased to have a publication the quality of the Hacker to bring me news and information about them. I look forward to the new issues every month but have yet to see my problem mentioned. This is why I am writing to you now.

I own an Epson QX-10 which is a CPM-based computer. I have updated it with a 256K Titan Technologies MS DOS co-processor board which gives me a total of 512K and allows me to run 16-bit MS-DOS and PC-DOS software on my computer. Most of it, anyway.

Here is my problem.

I need to find out if there is anyone out there making an internal interface card or an external interface that would allow me to run sequencer software, scoring and printing software, sound editing software and librarian software for my Mirage and ESQ-1.

This would be a great help to me as it would mean I would not have to buy a new computer to use with my keyboards. So please, anyone out there in Hackerland, if you might have a solution for my problem please let me know.

Thanks for all the help and keep up the great work.

Bruce Whitehead
Golden Valley, Minn
(612) 546-3894

[TH - We've printed your phone number in case anyone can help - we can't.]

Dear Whoever reads the letters that might get printed in TH:

You don't know me. I'm a musician and in many respects very boring and methodical in my approach to life. I have waited, waited, waited... wondering what the synth market would come up with next; not purchasing an instrument because I was afraid as soon as I bought something, something bigger, better, and CHEAPER would hit the store. For example, when I buy a car, no matter how much I "love" it, I just put a deposit on it and come back the next day. If I still feel the same as the day before; I get it. Well, I was very impressed with the DX7, thought I couldn't live another day without one, and then I realized, "this still is not the ultimate." It sounds great but is going to require a lot of other gear to do things. When I read an article in KEYBOARD Magazine a few months ago, I really went crazy. This is almost embarrassing to say, but I read the article over and over every night before I went to bed. Then I saw and heard a demonstration, I HAD TO HAVE ONE! It was the ESQ-1. Before you fall asleep in your soup, the moral of the story is... I bought it yesterday and I am so exited. And that's strange because I'm usually so boring. But not anymore. I'm excited, excited, EXCITED. It may sound mundane, but the ESQ-1 changed my life. And I'm having so much fun. Maybe next I'll consider a pair of dark glasses.

Thanks for listening. I had to tell someone.

Very sincerely,
Frank T. Voltz
Fairfax, VA

[TH - Okay. But what do you think of the Hacker?]

[Ensoniq's response - We're glad that you've chosen to share your jubilation over the ESQ-1. We're always happy to learn of yet another satisfied customer.]

Dear Hackerz;

Thanks for continuing the fine work in your publication. I have a couple of questions which perhaps you can answer. First, my new Mirage rack occasionally "crashes" - sometimes accompanied by mysterious sounds, sometimes quietly. The display locks onto who knows what. Also, sometimes it doesn't even turn on at power up. A little flash from the drive light, then nothing - no "nd". These problems are not constant and so I hesitate to bring it in for service. A gentle rap to the unit has seemed to cure the no start problem. Perhaps a loose jumper? What do you think?

Second, that omnipresent Yes sample from "Owner of a Lonely Heart" - I've heard it everywhere. The latest is on Sly & Robbie Rhythm Killers album. Where is the original source of that sample?? My guess is some James Bond soundtrack. Anybody know??

Third, not a question but a caveat. MIDIMOUSE piano samples are the lowest quality believable. My DX100 sounds like a Bosendorfer next to those samples. The upright piano consists of one sample across the keyboard. The second bank has a few samples, but they are good only at a note or two per sample. No tonal consistency across the board. The third bank is allegedly harpsichord - it is clearly a piano sample with high filter Q built into the sample. The sample sounds (to me) awfully similar to Ensoniq's piano, except for the Q and a lifeless loop. My technical claims may be off, but these sounds stink out loud. Ensoniq's piano with OS 1.2 was light years beyond these. BEWARE! I wrote Midimouse, asking for excuses or money back (I sent the disk). No reply.

That's all. Good luck.
Joe Rose,
N. Attleboro, MA

[Ensoniq's response - The Mirage rack service problem you describe could be caused by a loose or faulty chip on the Main board, or by something as simple as a loose wire. We suggest that you consult with your nearest authorized Ensoniq Repair Station or contact customer service at 215-647-3930.]

Dear Hacker:

I was one of the first to buy an ESQ-1 (ordered in August, arrived 6 weeks later!!) and have almost nothing but praise for the machine, but I have a few questions:

1. I've tried many times, unsuccessfully, to record a sequence from the Super Sequencer (C-64) INTO the ESQ; the ESQ pretends to record one measure and then stops. (Recording ESQ to C-64 works fine.) Any ideas?

2. I have Blank Software's Sound File, and even a backup disk of same. Both have the same bugs, the most annoying of which is the scrambling of sequence data as it's loaded into the ESQ, and always right around sequence 4 or 5. I tried a different ESQ and it did the same thing. Blank software hadn't heard the complaints from anyone else. The other problems with Sound File: If trying to save a file from the ESQ in SF's song Mode, the program DISPLAYS "song 4" (or whatever occupies that position), but you can't select it. Consequently, I'm afraid to use the program to store anything invaluable.

3. Advise to cassette users: I lived in an apartment last year which was within a mile of an AM radio station, and cassette dumps were risky at best. I ended up lifting the ground, putting everything on the same power strip, and using heavy shielded cables. Then it worked most of the time. Now I live "out in the country" and any old setup works.

4. Thanks to Jim Johnson for his sage advice, especially the warning about using TX81-Z with the ESQ. On a recent project I used the FBO-1 instead as an expansion module, and it worked great, except for occasionally cutting out on the first note (only) of an overdub. In many ways the module is an ideal expander for the ESQ, and will (inex-

pensively) satisfy what one of your readers described as "FM freaks".

Thanks for a great magazine!

Best,
Wayne Dooley
Winchester, VA

[Ensoniq's response - Some sequencers send a Stop and then a Start when you hit play. If the ESQ-1 is in Record Standby (REC flashing) this will kick it out of Record. Syncing the C-64 to the ESQ-1 (instead of the other way around) should allow you to do what you want.]

Dear TH:

Wow neat! - A bad review. I feel like I'm really ready to go out and make it in the music business now that I've felt the sting of the Bad Press! First of all, I feel a little funny about being able to respond to this review. I mean, we "Manufacturers" are supposed to be able to take it on the chin and go on right? But, not being one to pass up an opportunity, here goes...

Number one, I am not a "Professional" Software Engineer. I am a guy who owns a Recording Studio (called Neo-Sync Labs), owns a Mirage, and in marketing it, I am only trying to share it with others. (I'm sure not making any money at it). The comparison chart published in the March '87 issue of the Hacker made it all too clear that some of the other programs for the Apple II and Commodore just didn't cut it for setting long loops and they were all VERY EXPENSIVE. The main drawback of these programs was that they couldn't display more than ONE page of sample at a time. So if you think Mirage-Aid fails on this point... well anyway. This was my inspiration for Mirage-Aid; to be able to see as large a sample as possible at once. Until I heard about the Steinberg program (which sounds like an absolutely AWESOME Program), I wouldn't have believed that you could get a little Commodore to display 256 Pages of a sample.

Mirage-Aid was designed to be just that - an AID to using the Mirage; a utility, if you will. I feel, especially considering the average prices of VES Programs, that it is priced as such. The philosophy was this: the Mirage display lets you see everything that goes on inside except one thing - the wave itself. I just needed a way to see what I was doing in there. Whenever I receive phone inquires about the product, I always try to figure out what they want it to do. I tell them, "If you want a good synthesis oriented package, then buy Enharmonik Productions program for the Commodore - it looks great!" From now on, I will definitely also recommend the Steinberg

as THE Display Program for the C-64!

At this point, I will probably close up shop on the Commodore version. I know that if I owned a Commodore, I would buy the Steinberg. If anyone still wants Mirage-Aid, naturally I will sell it. But from now on, the Commodore Version will be $40. I sent it in for review instead of the Apple version only because the screens draw faster on the Commodore and then the reviewer didn't mention it - Gee Whiz!

In the first paragraph, the reviewer states that it fails at helping you to set long loops because it can only view 16K (64 Pages) at a time. Let's look at some key features from the comparison chart from March '87, shall we? I'll add Mirage-Aid for comparison. Take special note of the "PAGES DISPLAYED" column (and the price column).

Company:	Enharmonik	Ensoniq	Neo-Sync
Computer:	C-64	C-64/A II	C-64/A II
Printout:	NO	NO	YES
Pgs Displayed:	256 (Env. only)	1	64
Pgs in Mem:	1	1	64
Send Play Note:	NO	NO	YES
Loop Aids:	0 Cross Search	Splice	Splice
Synthesis:	YES	NO	NO *
Price ($):	100	150/300	65

* Version 2.0 has Karplus/Strong Synthesis.

In the second paragraph, Fox mentions the fact that the level of the wave at the loop point is "oddly" displayed in decimal. Doesn't it make more sense to think of the wave as going from -127 to +127? I've never heard anyone say "try to loop at the $80 crossing point". He then says it would be very hard to find loop points on the overview screen. I'm not sure what the complaint is here. Should it not have an Overview Screen at all? Doesn't it do what an overview screen should do? You know, give you an overview or something!

I similarly defend my Zoom Screens. They let you compare two sections of your sample with a fairly high magnification.

He mentions the fact that the splice screen is made up of unconnected dots. This is in the Commodore version only. I feel that finding zero-slope points is as important as finding zero-crossing points. Remember, the Mirage changes pitch by skipping over samples; so, depending on the pitch, the Mirage is probably not playing the sample which you've set your loop point on, anyway. The idea is to set loop points in a place where the wave is changing at as slow a rate as possible. If you go to the splice screen and it looks like a snow storm on the screen, you can guess you're not in good loop country, anyway.

Thanks for mentioning the good points. I am surprised that he didn't mention that the MASOS Screen is very rudimentary, and, yes, even crude. It is! But it is called Mirage-Aid, right? Most of my customers that I've talked to say they never even use the MASOS Screen - hmmm. I am amazed that he had anything good to say about my tiny Owner's Manual. The thing must be a good 4 pages long! But thanks! (I did get an A in tech writing - but not spelling!)

I must admit that I feel terrible about it crashing on him. I hate it when a program I buy crashes. The only thing I can say is that it was fresh off the presses, and had not been tested enough (obviously). When the Apple version first came out, it had some bugs in it, too. When I, or a customer would discover one, I would fix it and immediately send all customers a new disk free. I have no intention of changing this policy. Also, I recently upgraded to Version 2.0 which includes a Karplus/Strong synthesizer. To upgrade, my customers only have to send a disk and $1.50. I have also given refunds to customers who had compatibility problems either with their computers or interfaces. I did this even though the program is not copy-protected and they could have kept it, anyway.

His statement that Mirage-Aid doesn't make looping any easier is absolutely the opposite of the feedback that I've gotten from customers, and of my opinion (biased as it may be). ANY program that lets you see a wave has got to make it easier to set loops. I must also disagree with a statement he made in his excellent review of the Steinberg program where he says not to have your VES running while sampling. This is the best time to have it running! What better way to set that all-critical recording level than to see the wave on the screen? And what better way to set the even more critical TUNING of the sample than to SEE how it lines up with the page boundaries on the screen. Your VES does show page boundaries, doesn't it?

So, will I fix anything? SURE! This is VERY constructive criticism. As of August '87, Mirage-Aid sets the loop points in the Mirage as you change them on the Screen! I will also certainly work on "Crash-proofing" the C-64 version as well. Naturally, whenever I do make any changes, ALL my customers will get a FREE Upgrade. If anyone is interested in either version, just give me a call and ask what the status is.

Got to go now - Flintstones are on.
Bob Damiano
Neo-Sync Labs

[Steven Fox's response - I do agree with most of your letter, however, I still stand by my review of Mirage-Aid 64 and must argue a few points you've brought up. While I do agree that the sample level is best shown in decimal, the other displays on the screen were in hex. The mix of the two seems awkward. While I know that nearly all C-64 editors view only one page at a time, I still don't find viewing even 16K at a time good enough for editing long loops. I think you will find nearly all the good long loops on Ensoniq disks use more than 16K. Furthermore, your splice screen can still look like a snowstorm, even on the perfect sounding loops. I recommend turning off the computer during sampling because of the high-frequency noise it can generate when it is too close to the Mirage. The TV or monitor is particularly liable to create terrible aliasing noise during sampling. This may not be the case with some people, but I find that turning off at least the monitor temporarily during sampling can prevent this noise.]

[TH - I think this back-and-forth criticism/rebuttal/improvements process is great to see and the best thing for your customers and our readers. We would certainly hate to see you just drop your C-64 version. Steinberg's program costs over three times as much as Mirage-Aid.]

Dear TH:

As an acoustic player, computer-assisted music (my phrase for describing the Mirage and other miracles) is all very new, and I'm delighted to have discovered the Hacker. I have questions already:

1. Many vendors and individuals sell samples. Is there a comprehensive review available? Can samples be heard prior to purchase? Can you get your money back? What is the prevailing method of distribution?

2. There are ads for sample libraries that list Mirage and other keyboards like DPX, EMAX, and the Emulator. Are all samples compatible? Or do Mirage samples require a special format/operating system, etc.?

3. I record my Mirage on a four-track Yamaha machine. Compared to my drum machine, there is an audible background hum (low frequency) that can be minimized by EQ. Is this normal? Is there some way to reduce the hum other than through EQ adjustments?

4. Volume drops when I switch from stereo output to mono. Is this normal? What can I do about it? Also, sound quality (and signal/noise) seems to be worse in mono mode. Anyone else ever mention this?

5. I see that you have some reprints available, one being "Mirage Operations." I have a Mirage DSK. Is the reprint helpful for a DSK, or does it cover earlier versions of the Mirage?

6. I purchased the MASOS software, but haven't gotten into it yet. Can you suggest some "user-friendly" material to make the learning process less painful?

Sincerely,
Eric Kriss
Newton, MA

[TH - Actually, pardon the pitch, but you should probably get copies of both our reprints. #1's info certainly applies to the DSK and it also contains Clark's famous "MASOS for the Masses" series. #2 will give you a lot of our earlier sample reviews. We'll continue to print more sample reviews for as long as we get them. Dealers will sometimes let you listen before you buy. Return policies vary - but it's kinda hard to expect too much from vendors selling something so easily copied. With few exceptions, a sample disk can only be played on a single type of machine. The vendors that support several different samplers will have the same sample available in several different formats. They'll need to know what sampler you have. There are some places selling things like CD recordings of various sounds and instruments that you then sample yourself.]

[Ensoniq's response - Question 3: For best results, we first suggest that you make sure that all your gear is plugged into the same outlet and sharing the same ground. If the condition persists, it could be caused by a hum problem we had with shipments of Mirage DSKs with serial numbers less than approximately 12192. There is a simple fix available and your nearest authorized Ensoniq Repair Station will be able to implement the repair.

Question 4: There should not be any drop in volume or change in sound quality when switching from stereo to mono. We suggest that you check to make sure that you are connected ONLY to the mono output jack. In addition, make sure that you are using line level inputs on your tape deck, not MIC level.]

Gentlemen:

I have a Mirage DSK8 and I recently purchased an ESQ-M. I use my Mirage as a master keyboard.

Do you know of anything in the way of a manual for someone in my situation such as a manual for "Getting the Most Out of Your Mirage Keyboard and ESQ-M"? Communication between the two units is poor in my opinion - or maybe it's my ignorance.

At a recent clinic in Leesburg someone told me that soon there would be a part that could be added to the Mirage to enable it to receive data from the ESQ module and store it on disk. Is this so? If so - when?

Thank you,
Charles Wahlgren
Belleview, FL.

[Ensoniq's response - It was never intended that the ESQ-1 be capable of transferring program data alone to the Mirage; program data must always "ride piggyback" on sequence data. Since the ESQ-M does not include a sequencer, it was necessary to omit the capability to transfer sequencer data (and accompanying patch data). There are currently no plans to modify the ESQ-M to allow it to send and store data to the Mirage.]

Dear Hacker,

I purchased my ESQ-1 in March of '87 and immediately began digesting the owner's manual. I would like to compliment Ensoniq on the vocabulary used (i.e., one syllable words containing less than six letters) thus making the concepts and instructions easy to assimilate.

I would also like to tip the ol' hat to the staff of the Hacker for the wonderful job you're doing. Many of the articles I have read since my subscription started have been of immense help in clearing up some problems that the manual doesn't deal with in quite enough depth. Particularly useful were Jim Johnson's article in Issue #26, his article in Issue #22, and Clark Salisbury's article in Issue #25.

Since I am the drummer for a full-time house band in Cheyenne, and since this is my first synth, I have had to learn rather quickly. Therefore, I submit for your perusal and possible publication, six programs along with some words of explanation.

I know you prefer new and original programs, but after reading about the new department "Hackerpatch Hacking" I thought I would go ahead and submit these. All of these were tweaked from the internal programs my ESQ-1 came with and before I had any cartridges to compare with. (Although I now have ESQ-A, ESQ-B, and Voice Crystal 1).

ACPNO1 and ACPNO2 were derived from PIANO1 and PIANO2 respectively, and ROADS1, ROADS2, and ROADS3 were derived from EL PNO, DIGPNO, and BL PNO, respectively. ROADS4 is a variation of ROADS2 utilizing a Bell wave in OSC 3.

I just want to share these programs with my fellow Hackers as a kind of "thank you" for all the help your publication has given me. And even if you don't think they're quite good enough to print, I would appreciate some kind of feedback about what I did wrong, or possibly how I could have done it better. Again, my thanks.

Sincerely,
Tom Seslar
Cheyenne, Wyoming

[TH - Ensoniq's patches are generally fair game for building up new patches, and your variations are in the queue for consideration for Hackerpatch. (By the way, to all patch hackers - we can't really accept for publication minor tweaks on patches that some third party is trying to sell.)]

Dear Hacker,

Just a short note about a new sample source that I have found. Having recently obtained a disk of keyboard samples from Mr. Wavesample, Jack Loesch, I can say that they are some of the best quality samples that I have heard. And at half the price of sample disks that I have paid $20 for, they are a real bargain!

When I called Mr. Loesch about getting more samples from him I found out that he knows an awful lot about sampling and is not afraid to share his knowledge or his time.

I applaud his spirit of helpfulness, a quality product, and I thought that the Mirage community-at-large should be aware that not all great quality samples are too expensive and not all inexpensive ones are of inferior quality.

Oh yeah, how about an article on building your own input sampling filter for us experimenters?

Thanks for a fine publication,
H. Wayne Bice
Naples, FL.

[TH - Deja vu alert.]

Dear Hacker:

For a thin magazine published cheaply in black and white yours is one of the most valuable publications I receive every month. Articles like Joseph Palmer's "Using Mix Mode" which point out simple little techniques which might be cryptic in the ASG are worth their weight in gold!

I have to ask you a dumb question -- is the Mirage DSK an eight-voice machine or not? On ANY sound, if I hold down a fifth key, the first is stolen, no matter where on the keyboard I do this. I'm worried, because when I bought my DSK a few months ago, it came making all sorts of buzzing and intermittent problems that mysteriously were absent at the music dealer's. Then, on my fifth trip there with the machine, yelling "I'm not crazy!" the DSK gave up the ghost. They shipped it out, and it came back in nine days fixed and cleaned up. I was aggravated that the first piece of American electronic gear I buy came broken, but thankful that Ensoniq was able to fix it so damn fast. It seemed to work like a charm, and I'm ready to pick out a VES package.

But now I'm worried that there is this other subtle problem of it being a 4-voice instrument. It may have always been this way and I never noticed it. Is this a problem, or is this the design of it? The ASG seems to state rather plainly that it is an 8-voice instrument. Either way, I'm seriously disappointed.

Also, has anyone developed an Operating System to replace Ensoniq's that doesn't retrigger the same voice from the same key? With the current OS 3.2, it's very annoying to hear retriggered sounds. Have you tried doing a tympani roll on one key with a sequencer? It hiccups like crazy.

In an earlier article, someone recommended THE TAPE from Korg as a resource for sampled sounds. In the July, 1987 issue of Music Technology, page 10, there is mention of a compact disk by Korg called "Sampling Collection Vol. 1" available for $41.95. It is reputed to contain "189 studio-quality samples of 34 acoustic instruments (most of which have multiple samples)". This sounds like what we've all been looking for. [I just can't find a local dealer that carries it!]

Thanks for the help. I'm not sure if I want to hear that my DSK is still broken (and, of course, past warranty! Grr!) or just designed/advertised badly. I understand Ensoniq's policy of "no user-serviceable parts" and therefore no repair manual, but there are those of us, however rare, that are buying pieces of equipment and having to make countless trips to the dealer just to prove to THEM that it's defective in some subtle way. I don't want my DSK to be one of those things that is in the shop more than it is on the road. I shelled out the cash for the instrument because I NEED it. I wish Ensoniq would reconsider releasing a repair manual for those of us who have the knowledge of electronics and who want to fix their machine in an hour instead of a fortnight. And, past warranty, much cheaper.

P.S. Is there such a thing as a "Mirage Diagnostic Disk? There should be?

Sincerely,
Kenneth Tkacs
Milford, CT

[TH - THIN?! PUBLISHED CHEAPLY?! (My heart! AAArrrgh...) If you'd been here when we were eight pages of crudely-printed killer info, you'd realize how incredibly fat and lavishly printed we are now. (Hmmph!) Regarding the Diagnostics Disk - we're publishing a two-part article by Steven Fox describing how to do just that.]

[Ensoniq's response - The Mirage is most certainly an 8-voice machine. The

4-voice phenomenon you are experiencing is most likely due to a MIDI loop. The MIDI out of the Mirage is in some way being connected back to its own MIDI in (perhaps through a sequencer) causing it to receive its own MIDI output . Each note you play is triggered twice (once from the keyboard, once from MIDI) and the Mirage ends up using two voices per key.

To test this MIDI loop theory, disconnect all MIDI connections from the Mirage and see if the 8-voice capability is then restored.]

And here's some queries for Ensoniq:

I take great delight in reading The Interface each month. In particular, reader's comments and wish lists for the ESQ-1. Now, I realize, given budget, technological limitations, etc. that some of these requests are most fanciful. I love the machine, particularly since 2.3 was implemented. However, just one (please!), just one wish. If you could delete the front end of a sequence in the same way you can change the end.

This would enhance the sequencing operation of the ESQ tenfold. For example, (1) Record a 'real-time' track and cut it up into sections for use; (2) cut and paste sections and/or sequences as desired, etc. If possible, this one change, I feel, would make the ESQ sequencer deadly, and go a long way towards making it truly competitive with the likes of the MC-500, DX5 and various software-based packages. (I think you're going to tell me it's an unchangeable function of the way the CPU reads - I hope not.)

Another minor query - what happened to "WAV-XXX" in 2.3?

What's the new ESQ in the wind?

What's the new Mirage in the wind?

Once again, thanks for the mag and thanks for the product.

P.S. ESQ and Mirage coverage is just fine by me and I don't even own a Mirage. Seems like it's only the samplers who bitch about "ESKYS".

P.P.S. Here's another gripe to fight:

When using the ESQ's step faculty, either for step time sequencing or fine editing on previously recorded tracks, are you aware of this?

When you "punch in" on, say, a group of even quarter notes (or any other value) and wish to replace one note by another of the same length, you invariably "clip" the start of the next note. The only way around this appears to be to input the new note (say 1/4) as 1/8 + 1/16 + 1/32 + 1/32 so as not to drop the front off the next note. A bit tedious, to say the least, and sounds like it could be corrected in software, but has so far been overlooked??

Paul Draper
Brisbane, Queensland
Australia

[Ensoniq's response - Thank you for your "fanciful" input regarding the editing capabilities of the ESQ-1 sequencer. We welcome such user feedback as it plays an important role in the design and development of new products.

Punching-in with STEP=1/4 does clip the note on the following beat; this is normal. When you press STEP, the ESQ-1 goes to the clock indicated, not to a point just before the clock. Anything on that clock will be erased. To avoid erasing the second quarter note, you should use a smaller Step size (as you indicated) and press some combination of STEP and CLOCK to get to Clock number 23, (just before the Quarter note) and then Punch out. This will insert a Key Up on Clock 23, but leave the note on the following Clock intact.]

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