

# TransonIQ Hacker

*The Independent Ensoniq Mirage User's Newsletter*

## NOTE CRUNCHING

### MIRAGE VISUAL EDITING SYSTEM

By Clark Salisbury

Morality is steadily eroding; our cities are becoming unlivable thanks to pollution and rampant crime; U.S. interventionist policies promise to propel us into World War Three. That's the bad news. The good news is, the Mirage Visual Editing System is here.

The Visual Editing System, or VES, is pretty much just what its name implies; it gives the user a way to actually see what's going on inside the Mirage, and to make appropriate (or inappropriate, as the case may be) edits. I got to use the system for a few hours recently, and I must say it's impressive. It's not for everybody - some of the operations are fairly complex, and some are downright tedious, but you techno-weenies out there are going to love it.

The heart of the system is its waveform display. This is a graphic representation, sample for sample, of whatever waveform is currently residing in the Mirage (not the entire waveform, actually - you can look at only one page of memory at a time). The VES also allows you to access all Mirage functions from the computer, as well as all MASOS (Mirage Advanced Sampling Operating System) functions.

The VES requires an Apple IIe or II+ computer with at least 64k of memory, an 80-column card (Videx compatible with soft switch required for the II+), a Passport or Roland compatible Apple/MIDI interface, and two MIDI cables (usually supplied with the interface card). Various optional graphics controllers can be used.

The VES includes a manual, a 5-1/2" floppy disk for the Apple (which is not copy protected), and two Mirage disks labelled MASOS-A. After all connections have been made, the Mirage is booted up with one of the MASOS-A disks. When the Mirage has completed its booting procedure, the Apple is booted with the VES. During the Apple boot, you are given a chance to re-configure the system. It is at this point that you tell the computer which type of interface card you are using (Roland or Passport; the default setting is Passport), which slot your MIDI card is in (default setting is slot 2), which slot the 80-column card is in (always slot 3 on the IIe, slots 1-7 on the II+), and the type of optional graphics controller attached to the game port (default is joystick or game paddles). If you do not wish to re-configure the system, just wait, and in a few seconds the program will automatically continue its boot-up procedure.

After boot-up, you will be presented with the Mirage VES Main System Menu. You will have seven selections:

- <1> WAVEFORM DISPLAY
- <2> WAVESAMPLE PARAMETER DISPLAY
- <3> PROGRAM PARAMETER DISPLAY
- <4> CONFIGURATION PARAMETER DISPLAY
- <5> WAVESAMPLE MEMORY MAP DISPLAY
- <6> MASOS DATA MANIPULATION FUNCTIONS
- <7> DATA TRANSFER FROM MIRAGE

To make a selection, simply press the number key corresponding to the number of your selection. Press <1> WAVEFORM DISPLAY; the screen will now give you a graphic display of the first page of the waveform in the Mirage's memory. A rectangular frame is drawn on the screen, bisected horizontally at its center point by a straight line. Another squiggly line moves above and below the center line. This is the waveform currently living in the first page of the Mirage's memory, and it is composed of dots, 256 of them, each one representing a single sample. The distance of each dot above or below the center line represents its amplitude value, and its location along the horizontal axis represents its position in time. Because of the limitations of the Apple's display, however, there is not enough room to represent all 256 possible amplitudes a sample could have, so the VES halves all the amplitude values, displaying only 128 vertical points. It does display all 256 horizontal points, though.

The waveform display frame can be thought of as a grid with 128 vertical and 256 horizontal points, numbered 00 to FF in hexadecimal (part of the VES mercifully includes a decimal/hexadecimal converter for those of us who were born with ten, rather than sixteen, fingers). This numbering allows you to locate the exact point of any sample within the currently displayed page. You can scroll forward and backward along the waveform, sample-by-sample or page-by-page, by using the four cursor keys on the Apple IIe, or by using the two cursors and the <, > keys on the II+. You can move directly to any of the 256 possible pages in memory by typing [P] followed by the page number (again, in hexadecimal). Similarly, you can move any single sample to the extreme left of the display frame by typing [L] (locate) and the hex value of that sample. Type [C] (cursor), and a vertical line is drawn through the middle of the frame, at value 80 (hex). While in cursor mode, this line can be moved forward and backward along the page, and its current position (in



hex) is displayed below the frame, along with the value of whatever sample it happens to be drawn across. This is meant to assist you in locating the value of specific samples. If you wish, you can also enter [N] (NEW DATA VALUE) to set new values for samples at the location of the cursor, and you can use the cursor to [S] (SET SOURCE START), [E] (SET SOURCE END), and [D] (SET DESTINATION START) pointers for use with MASOS functions, such as the replicate function.

Pressing the [D] (DRAW WAVEFORM) key puts you in drawing mode. A small crosshair cursor appears on the screen. Drawing can be accomplished in a couple of different ways. One is called 'single point editing' and is accomplished by using the arrow keys (on the II+ use the arrow and the <, > keys) to position the cursor at the appropriate location, and then pressing the space bar to place a data point, or sample, at that location. Another method is to hold down one of the Apple keys (located on either side of the spacebar on the IIe keyboard) while moving the cursor. This allows you to draw waveforms by moving the cursor around the screen, although drawing in this fashion is somewhat like using an automated Etch-A-Sketch; it is best suited for drawing straight lines. Those of you with Apple II+ computers can expect a bit of frustration here. There are no Apple keys on the II+, and there is no mention in the manual of this problem. I got the II+ to draw straight lines at one point by holding down the shift key while the cursor was moving, I think. I say 'I think' because I was able to do it only the first time I used the VES; subsequent attempts failed to produce the same results.

The last method for drawing waveforms is the graphics mode. Hitting the [G] key accesses this function, allowing you to use an optional graphics controller for drawing waveforms - graphics tablet, joystick, what have you. When you realize (while doing single-point editing) that each point you enter by moving the cursor and pressing the space bar is only one of a possible 65,000 or so, graphics mode begins to look rather attractive - especially for large-scale editing or drawing waveforms from scratch.

I tried out the graphics mode using a joystick I had laying around, and my guess is that you will definitely want to use some sort of tablet (such as the Koala Pad) while in this mode. Does anyone remember the Skidoodle? It was sort of like an Etch-A-Sketch with a joystick rather than knobs. My experience with the joystick was not unlike trying to use a Skidoodle while under the influence of amphetamines. As it says at one point in the MASOS manual, this is not what I had in mind. And by the way - for some reason the manual doesn't mention that to exit graphics mode you must move the cursor to the top of the screen before pressing the escape key. Also, since there is no way to move the cursor while in graphics mode except from a graphics controller, be sure not to inadvertently hit the [G] key unless you have some sort of controller plugged into your game port. If graphics mode is activated when there is no graphics controller in use the only way to exit seems to be to turn off the computer and re-boot. Of course, any data in the computer that hasn't been saved will be lost at this point.

Anyway, drawing waveforms can be great fun once you get the hang of it. It is exceptionally useful for smoothing out loops, since you can simply draw a perfect zero-crossing into a waveform that doesn't have one. You can also use it to eliminate clipping (distortion) and spurious noise, although, while clipping is fairly easy to spot (it will appear as a flattened portion of the waveform at the top or bottom of the frame), noise may be hard to distinguish from the other parts of the waveform. Of course, you can always just draw the waveform that you want into a single page of memory and loop that, or use the MASOS replicate function to reproduce it throughout memory. Pressing the escape key will allow you to exit drawing mode - as a matter of fact, the escape key is used to exit almost any part of the program, and it can be used in certain instances to simply 'back up' a step from wherever you may be at the time. You will be prompted to return the modified waveform to the Mirage. If you don't do so, any changes you have made will be lost when you move on to the next part of the program.

If you need a clearer idea of the shape of the waveform you're working with, simply press the [F] (FILL) key. The area under the waveform will be filled in with solid color. Many of the waveform display functions will not operate while in FILL mode, however. Oh well. Pressing [F] again "unfills" the waveform.

Pressing [B] (SWITCH MEMORY BANK) allows you to alternately view the upper and lower banks in the Mirage memory, and hitting [E] (EXAMINE SPLICE) will take you directly to the page in memory containing the splice point of the current waveform, locating the splice at the middle of the page (80 hex) with a vertical cursor drawn through it. Pretty dang handy.

Hitting [M] (MASOS FUNCTIONS) will take you directly to the MASOS functions menu without having to go through the main menu. From here you can perform a number of sophisticated data manipulations. If you have MASOS but haven't used it much before now, I guarantee things will change. MASOS suddenly becomes much clearer when you can actually see the results of performing its various functions, and some functions which previously seemed obscure and ineffectual (like the enigmatic wavesample rotate function) will suddenly take on new meaning. Why, you'll soon be rotating with the best of them - hard to believe as it might seem. Other MASOS functions available from this menu include COPY source to destination (for moving portions of a wavesample around), FADE IN from source to end (for fading into waveforms), FADE OUT from source start to source end (for fading out of waveforms; can be combined with the FADE IN command to create crossfades between two different waveforms), SCALE source start to end (similar to FADE IN and FADE OUT, but the waveform can be increased or decreased by a set amount without necessarily going to maximum or minimum volume), ADD source into destination (leaves you with the source and destination waveforms both in memory at destination's location; has the effect of mixing two waveforms at equal volume), INVERT source start to end (reverses the polarity of each sample in the source waveform; can be used to create an upside-



down version of the selected portion of the waveform which may be easier to splice with the original when looping), REVERSE source start to end (reverses the selected portion of the waveform creating a backwards effect, also allows you to do bi-directional looping), REPLICATE source start to end (allows you to reproduce the selected waveform portion throughout a selected area of memory), and ROTATE current wavesample data (chops a user-definable number of samples off either end of the current wavesample and pastes them back on to the other end; useful for getting the current wavesample to line up with the Mirage's page boundaries). The MASOS functions offer some very powerful utilities, but for some reason they are never explained in the VES manual. Instead, you will be referred to the MASOS manual, which you may or may not already own. Of course, the MASOS system by itself is a powerful add-on to the Mirage, but it seems a rather unnecessary expense if one already owns the VES. Oh well.

Apart from the waveform editing functions, the VES provides information on all the Mirage functions and parameters through a variety of screens, and allows for the manipulation of those parameters from the computer keyboard. If you want to change a filter setting, for example, simply hit key number <3> (PROGRAM PARAMETER DISPLAY) and the screen will change to reflect all the Mirage program parameters and the numbers used to call them up (handy for those of us who can never remember if filter cutoff frequency is parameter number 36 or 46, and who also forgot where they left the parameter card that came with the Mirage). To change a value in this case, simply type [P] followed by the number of the parameter you wish to change, (filter is number 36), and use the up/down arrow keys (the <,> keys on the II+) to increase or decrease the value in memory. The Mirage is instantly updated with the new settings, so it's very easy to hear the effect of any changes you might care to make.

All in all, the system works quite well. Some operations will probably seem a bit tedious - single-point editing comes immediately to mind - but that's the inherent tradeoff if you want a system that will allow you this kind of control over sounds. Probably some people will use this system for nothing more than simply finding good loop points and performing some of the more difficult MASOS functions. The ease with which it accomplishes these ends alone will make its \$299.00 price tag seem cheap to some. There are some unfortunate omissions in the manual, (especially regarding VES operation in conjunction with the Apple II+), but anyone with some previous manual-reading experience should do all right. And once you've worked with the system a bit, you should find it quite easy to move around without using the manual at all; just follow the screen prompts. If you need help, just press the [?] key, and you'll get a listing of any options that are available to you from wherever you are in the program. If that doesn't do it, simply press the escape key until you get back to the main menu, and start again. And no matter what problems one may encounter along the way, it must be

remembered that there simply isn't a system with this sort of sophistication around at anywhere near this price.

Now, if only it did windows...

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

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## CLASSIFIEDS

### USER GROUPS

M.U.S.E. - Mirage User Group for Elmhurst, IL area. Meetings soon to begin using the VES to loop sounds. Please contact J. W. Adams, 269 Cayuga, Elmhurst, IL 60126. (312) 834-3779.

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

Hollywood Mirage Owners User's Group. Hints and techniques. Sound trading and demos. Meetings held at Classic Sound Recording Studios. For info, call Patti (213) 664-7622.

Interested in contacting other Mirage owners in the Detroit area. Joe Woeff, 16653 Fairway, Livonia, MI 48154.

### SAMPLES

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

WANTED: A quality sample of Sound 22 from the OBERHEIM. Jay Quinlan, 213 15th Place, Manhattan Beach, CA 90266.

### EQUIPMENT

Mirage for sale (am getting rack-mount unit). VISUAL EDITING SYSTEM for sale, along with Advanced Sampler's Package. Requires Apple II+ or IIE. View and alter the waveform directly on the Apple screen. Makes loop selection fun instead of a burden. A must for quality looping and waveform clean-up. Call Arthur Cronos at (415) 668-7777.

### FREE CLASSIFIEDS!

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By Steve Coscia

There are two MASOS parameters (17 and 18) set up to perform wavesample moves. This article will describe a step-by-step exercise using them to duplicate the upper wavesample data in lower wavesample memory. We then finish up by configuring the topkey assignments and copying the program parameters from upper to lower.

The parameters are [17] and [18], and are defined in the Advanced Samplers Guide on page 26. To begin this exercise, we'll copy the upper harmonica sound on Disk #10 to lower memory using parameter [17]. Let's start by booting-up with a MASOS disk. Then load lower 3 from MASOS (8 wavesamples) and upper sound 3 from Sound Disk #10. Remember to take advantage of the SEQ REC and SEQ PLAY buttons to save time.

When copying a wavesample to another location in memory almost all data will be copied. Unfortunately, topkey data is not transferred and must be defined in the lower memory after you are finished copying wavesamples. Finally, we'll copy the upper programs to the lower memory so both keyboard halves will be identical.

Let's start by setting up a memory map. First, look up the values of parameters [60] and [61] in upper wavesamples 1-8 and note them in a chart. I have provided the values for you, but give yourself the opportunity to look up these values so you can develop some hands-on experience. For you samplers with the Visual Editing System all you need to do is use the Wavesample Memory Map Display.

Table 1. Memory Map.

Upper Wavesample No.	1	2	3	4	5	6	7	8
Wavesample Start [60]	10	40	00	40	80	C0	3C	BC
Wavesample End [61]	3F	7F	3F	7F	BF	FF	3F	BF

Next, create a mirror image of the upper wavesample configuration by adjusting the values of [60] and [61] in lower wavesamples 1-8. Using the values listed in Table 1 as a source of reference, do the following:

- Step 1. Press SEQ PLAY
- Step 2. Press #1
- Step 3. Select Parameter [60]
- Step 4. Set value to 10
- Step 5. Select Parameter [61]
- Step 6. Set value to 3F

You have just made the wavesample start and end parameters of lower wavesample #1 the same as its upper counterpart. Notice that Step 2 defines the wavesample number and Steps 4 and 6 are the start and end of the wavesample. Repeat this procedure with the appropriate values in Steps 2, 4, and 6 for the remaining seven wavesamples.

Now, you're ready to start copying the upper wavesample data into lower memory, as follows:

- Step 1. Press SEQ REC
- Step 2. Press #1
- Step 3. Select Parameter [17]
- Step 4. Press #1
- Step 5. Press ENTER

You have just copied upper wavesample #1 to lower wavesample #1. Notice that Steps 2 and 4 define wavesample source and destination respectively. Let's continue:

- Step 1. Press SEQ REC
- Step 2. Press #2
- Step 3. Select Parameter [17]
- Step 4. Press #2
- Step 5. Press ENTER

Now upper wavesample #2 has been copied to lower wavesample #2. Got it? Continue this operation for all eight wavesamples. Once all the upper wavesample data has been copied to lower memory, we'll adjust the topkey values for the lower memory.

Let's look at the topkey values for upper wavesamples 1-8:

Table 2. Upper Topkey Values.

Upper Wavesample No.	1	2	3	4	5	6	7	8
Upper Topkey [72]	41	41	53	53	61	61	57	61

What we want to do is duplicate the upper split-point configuration in the lower keyboard. But wait... the upper harmonica starts on F3, and once it's copied to lower, it will start on C1. I know it's weird, but don't worry! Upper wavesample #1 is the same as lower wavesample #1. For confirmation, notice that F3 has the same pitch as F1, the only difference is the five additional keys below F1.

Ideally we want the lower topkey set up to be the same as it's upper counterpart as follows:

If (upper #1) = (F3 to E4), then (lower #1) = (C1 to E2).

Table 3 illustrates the difference between upper and lower topkey values in this exercise. After examining Table 3, let's go through the steps that will set up the lower split points.

Table 3. Upper and Lower Topkey Comparability

Upper Wavesample No.	1	2	3	4	5	6	7	8
Upper Topkey	41	41	53	53	61	61	57	61
Lower Topkey	17	17	29	29	29	29	29	29

Let's start setting up lower topkey configuration as follows:



- Step 1. Press SEQ PLAY
- Step 2. Press #1
- Step 3. Select Parameter [72]
- Step 4. Set value to 17
- Step 5. Press SEQ PLAY
- Step 6. Press #2
- Step 7. Set value to 17

We have just changed the topkey values in lower wavesamples #1 and #2. Now we want to allow lower wavesamples #3 and #4 the same exposure as their upper counterparts as follows:

If (upper #3) = (F4 to E5), then (lower #3) = (F2 to E3)

Notice that the highest topkey value is 29. This is halfway up the keyboard, which is comfortable for me, but you may choose to have it set higher. let's continue:

- Step 1. Press SEQ PLAY
- Step 2. Press #3
- Step 3. Set value to 29
- Step 4. Press SEQ PLAY
- Step 5. Press #4
- Step 6. Set value to 29

Continue this operation on all eight wavesamples using Table 3 as a guide. The value you choose to set for wavesamples #5 and #6 will determine how far up the keyboard you choose to go. After your topkey values are defined, we'll copy the upper programs to the lower memory.

When copying upper programs to lower programs use parameter [15] as follows:

- Step 1. Press SEQ REC
- Step 2. Press PROG
- Step 3. Press #1
- Step 4. Select Parameter [15]
- Step 5. Press #1
- Step 6. Press ENTER

We've just copied upper program #1 to lower program #1. Let's continue:

- Step 1. Press SEQ REC
- Step 2. Press PROG
- Step 3. Press #2
- Step 4. Select Parameter [15]
- Step 5. Press #2
- Step 6. Press ENTER

Continue this operation on all four programs and your lower programs will be identical to your upper programs.

Naturally, this is just one example of how Parameter [17] can be useful. Parameter [18] will yield the same results when copying lower wavesamples to upper memory.

Imagine the possibilities! You can create a keyboard configuration composed of 16 wavesamples, each taken from different sound disks. You can have five or six

drums, an octave of bass guitar, an octave of piano or organ, and a lead sound like sax, trumpet or synthesizer. The construction of a configuration like this would be more complicated than this exercise in that the source and destination of wavesample data will not always be the same value. An example would be a source of 00 to 1F that is copied to a destination of 60 to 7F. Notice, both the source and destination are the same number of pages, but they are located in different places in memory. This function will work fine providing you always set your destination to be the same size as your source.

I hope you find this as interesting and useful as I do. Sample on!

Steve Coscia is Customer Service Manager at Ensoniq. He has been involved with performing and recording synthesizers for 10 years.

## MIRAGE DISK FORMATTER

Mirage owners no longer need to buy expensive pre-formatted disks. Let your Mirage format inexpensive 3½" blank diskettes for your sound and sequence storage. This program will quickly pay for itself. Included is a back-up utility allowing you to copy any Mirage operating system from one disk to another. Send \$39.95 for the TRITON DISK UTILITY.

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## BACK ISSUES

Back issues are available for \$1 each. Some back issues are no longer available in their original printed form and a photocopy will be substituted.



## PARTIAL MIRAGE MEMORY MAP

By Scott Willingham

ADDRESS	CONTENTS
0000 - 7FFF	Bank switched four ways to 64k RAM "wavesample memory" (probably also a 5th way to rear panel port). - A15 generated near or in Q-chip facilitates this bank switch.
8xxx - Bxxx	16k "operating system" RAM
Guesses:	
8000 -	last disk command
8002 -	current disk track number
8006 -	last disk status
BF80 -	bank # x4, also initial stack pointer
BF85 -	wavesample memory bank # pointer
F000 - FFFF	PROM (dump available)
E2x0	6522 Register B
E2x1	6522 Register A
E2x2	6522 Data direction register B
E2x3	6522 Data direction register A
E2x4	6522 T1 low order latches/counter
E2x5	6522 T1 high order counter
E2x6	6522 T1 low order latches
E2x7	6522 T1 high order latches
E2x8	6522 T2 low order latches/counter
E2x9	6522 T2 high order counter
E2xA	6522 Shift register
E2xB	6522 Auxiliary control register
E2xC	6522 Peripheral control register
E2xD	6522 Interrupt flag register
E2xE	6522 Interrupt enable register
E2xF	6522 Register A (no handshake)
E1x0	6850 Control/status register
E1x1	6850 Transmit/receive data register
E(4,5,6,7)xx	AD7524, xx=channel #? - may be amplitude controls - see PROM code at F0FC
E(8,9,A,B)x0	WD1770 Status/command registers
E8x1	WD1770 Track register
E8x2	WD1770 Sector register
E8x3	WD1770 Data register
ECxx	? Q-chip or R1107 registers?

## VISUAL EDITING SYSTEM: DUMPING THE SCREEN TO PRINTER

By Traktor Topaz

Purpose: It would be handy if you could print out a hard copy of the waveform on the screen. This simple modification allows you to do just that.

Approach: The waveform display uses Apple's HI-HES (High Resolution) graphics section of memory. Many printer interface cards have the ability to dump the HI-RES memory section to the printer. All that is needed is to get the instruction to do so to the printer interface card.

However, the MVES program continually polls the keyboard, looking for the user to input one of the menu choices. All other input from the user is disregarded. The MVES program also disables the capability to stop things with control-reset, so you can't stop the program in order to instruct the printer interface card. (You could turn off the computer, but there goes the HI-RES image you wanted to print out.)

The solution is to add a command to the MVES program itself. As the MVES Waveform Menu program is in Applesoft Basic, this isn't difficult. The program has a loop in which user input is examined. The user's input causes a jump to various subroutines, which then do the task requested.

The last test in the input loop of Waveform Menu is for "ESC" or "X," meaning "go back to the main menu." Substitute a GOTO to the end of the Waveform Menu program at this point. There you will test for "ESC" and "X," and also test for our new command: "I."

"I" shall be the code for "Print Image." It was chosen because it's not in use as a code, and it's OK as a mnemonic. ("P" was already in use, so "Print" was precluded.) It will NOT be automatically included in the commands displayed for you under "View commands."

If the user inputs "I," then the program will jump to a small subroutine, also added to the program end, which contains the instruction to be sent to the printer interface card, which then does the work of dumping the screen to the printer.

My printer interface card is a PKASO, and so the instruction shown here is for that card. Grapplers and most other smart printer interfaces have an analogous instruction; you will need to look up the proper code in your printer interface manual.

### OLD CODE:

```
60 IF Y=27 OR Y=28 THEN RETURN
(Remark - If "ESC" or "X," return to the main menu.)

61 CALL G : GOTO 43
(Remark - Call keyboard input routine, restart the loop.)
```

### NEW CODE:

```
60 GOTO 333
(Remark - Send to program end.)

61 CALL G : GOTO 43
(Remark - unchanged.)

332 REM MOD 8/24/85. COMES FROM LN#60.

333 IF Y=27 OR Y=88 THEN RETURN
(Remark - If "ESC" or "X," then return to the main menu.)
```



```

334 IF Y=73 THEN GOSUB 337 : REM- SCREEN DUMP.
(Remark - An ASCII value of 73 is "I.")

335 GOTO 61
(Remark - Jump back into the loop.)

336 REM- SCREEN DUMP.

337 PR#1 : PRINT CHR$(9);"2H"
(Remark - Instruction to PKASO printer interface
card.)

338 PR#0 : RETURN
(Remark - Resume output to CRT screen, return to line
335.)

```

Hope you find this mod handy. Next month, I'll supply code for a mod that allows you to leave the MVES Main Menu to another disk without turning the machine off and on.

Traktor Topaz  
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San Francisco, CA 94118

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### MIRAGE TELECOMMUNICATIONS The Problems, The Possibilities

By Walter Daniel

I'm sure a great many of us wish we could use telephone lines to distribute Mirage sounds. Unfortunately, there are some problems. With an inexpensive 300-baud modem ("baud" means bits per second), transmitting the entire upper or lower memory contents (64k bytes each) would take almost half an hour! This quick calculation doesn't even include such essentials as stop bits, parity, or error checking that would further increase the time needed to complete the task. Even with a more expensive 1200-baud modem the transfer would take about 10 minutes. Does this time factor prohibit cost-effective telecommunications? Perhaps not...

By making a few tradeoffs, we can significantly reduce the transmission time. Many useful sounds use only one page (256 bytes) or a few pages of memory. Instead of transmitting all four programs (36 bytes), we could transmit only one and copy it to the other three locations. Add in a wavesample control block (24 bytes) and a segment list (32 bytes), and the number of bytes necessary to transmit a one-page sound is 348. This sound could be transmitted with error checking in a minute or two at 300 baud. Keep in mind that the Mirage is essentially an analog synthesizer with numerical control of the oscillator waveform. Even a one-page sample can be much more complex than a simple sawtooth or square wave.

How can these techniques be useful? It becomes possible for Ensoniq, independent developers, or user groups to create bulletin board systems (BBSs) for the distribution of sounds. A special terminal

program and protocol would need to be developed, but this program would not require a huge effort. A few pages of memory, associated programs, and requisite control blocks and lists would be transferred to the home computer and saved on disk. The computer would put the data in the format the Mirage requires, then transfer the sound to the Mirage over MIDI. Users could upload their sounds to the BBS as well, including descriptive titles and usage notes.

As of this writing, one can purchase a Commodore 64, disk drive, and 300-baud modem for \$400 if a TV is used as a monitor. If someone would ever produce a Visual Editing System for the 64 (Ed. - still in the rumor stage), the entire BBS concept becomes viable. Sure, the 64 has its limitations, but its lower price makes it available to more people. (Personally, I balk at the idea of spending as much if not more on a computer than I did on my Mirage.) A BBS system could be set up with nominal dues to cover operating costs; it might be necessary to install a "one download for one upload" policy to keep a number of sounds available. The BBS could serve as a communication forum for Mirage owners as well.

There are other possibilities for telecommunications of sounds. Faster modems (1200, 2400, and even 9600 baud) are available and falling in price. A well-designed data packing method could increase the amount of data sent in a given period of time. The home computer has to translate the data into the Mirage format anyway, so unpacking the data would not be too difficult. Some sort of artificial intelligence program could be written to not only perform data packing, but "recognize" certain types of sound data to further reduce the transmission burden.

Ideas? Comments? Questions? Talk it up in the Hacker or telecommunicate to me via Compuserve (ID 75066, 164).

Walter Daniel may have studied Aeronautics and Astronautics at MIT, but he did minor in music ("humanities concentration"). He is presently a graduate student at Georgia Tech. One of these days he is going to finish - really! - an independent recording.

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## CHANGE OF ADDRESS

Please let us know at least four weeks in advance to avoid missing any issues. The Post Office will not reliably forward this type of mail. We need to know both your old and your new address.



## SOUND DISK UPDATE

By Erick Hailstone

One of the most common requests we get is for a list of available sound disks from Ensoniq. Well, here it is along with a brief comment on each one. (There may be slight program variations on your disk - depending on version number.)

### DISK 1

#### BANK 1

L1/U1 - An acoustic piano from the lowest note to the highest on the Mirage keyboard. Because the Mirage keyboard can't cover the entire piano a second sample has been made (DISK 5).

L2/U2 - The same as L1 and U1.

L3/U3 - Uses the detune parameter to give the piano a chorused Honky Tonk effect.

L4/U4 - Uses a damped percussive attack that sounds like you're plucking a muted piano string. The sound is great for funky bass lines.

#### BANK 2

L1 - An electric bass. An octave above the lowest F is a new sample, a slapped bass. This is a multisample used in a very effective way.

L2 - Electric bass with a fast wah attack (filter sweep) and a high resonance giving it a synthesized quality.

L3 - A slow attack making the electric bass seem as if it is being bowed.

L4 - An electric bass without the slap an octave up. It also has a very slight chorus, longer sustain, and is slightly rounder

U1 - Fuzz guitar (distorted guitar).

U2 - Same sound only chorused.

U3 - A slow attack and chorus. This changes the character of the sample considerably.

U4 - Also chorused with a bright wah and a medium sustain.

#### BANK 3

L1 - Shows another usage of the multisample. The bottom four keys are drums: C = bass drum; C# = high hat; D = snare drum; D# = electric tom tom. The rest of this sample is synthesizer bass. Even though there are only four drums pitch bending them can get you a long way.

L2 - Replaces the drums with synth bass. It's a rounder sound, more of a square wave and a little less bright.

L3 - Brings back the drums, only filters them making them sound electronic. The bass has a softer attack, rounder, a little less bright and chorused ever so slightly.

L4 - The bass sound from L3 without the drums.

U1 - Wooden flute although similar to the classical instrument is more of a folk instrument and has more air.

U2 - Has a quick percussive attack followed by a sustaining sound with a slight chorus.

U3 - Similar to U2 with stronger chorusing.

U4 - Has a very percussive attack like a marimba followed by sustaining sound with chorus.

### DISK 2

This disk uses sounds that translate up and down in pitch well so you can take lower samples and extend them over the entire keyboard. It also uses multisampling, only this time to give you different samples for the alternate programs.

#### LOWER BANK 1

L1 - The attack of a bell followed by a brass ensemble swell with long sustain.

L2 - Seems like a DX-7 electric piano. Percussive attack with long sustain.

L3 - Basically a lightly chorused Hammond organ.

L4 - DX-7 clavinet. Metallic with a slight wah and long sustain for a clav.

#### LOWER BANK 2

L1 - heavy percussive attack, like a mallet instrument and organ body.

L2 - DX-7 clavinet again only chorused and no wah.

L3 - An analog synth brass sound with percussive attack and light filtering with resonant peak.

L4 - An analog synth brass with long filter sweep and starting from a high resonant peak.

#### LOWER BANK 3

L1 - DX-7 brass - a good, punchy brass ensemble.

L2 - DX-7 clavinet - metallic with a doubled attack. My favorite clavinet on this disk.

L3 - DX-7 jazz guitar. Now, this won't sound like an arch top guitar unless you take great care to arpeggiate chords slightly and really think like a guitar player.

L4 - Rock and roll band playing an E vamp looped to play over and over, occupying only the lowest note.

Because these lower samples cover the entire range of the keyboard they will mask any upper samples, so always load Bank 3, L4 when you want to access an upper Bank.

#### UPPER BANK 1

U1 - Sounds like a choir with an orchestra underneath. You'll hear the voices in the upper range and as you proceed downward it will sound more like low strings.

U2 - Same sample with a downward filter sweep starting with a high resonance and chorusing.

U3 - Same again but chorused with a very long attack.

U4 - Same - medium attack, chorused with filter sweep.

#### UPPER BANK 2

U1 - Brass-like synth sounds. Medium attack, high resonance and medium release - kind of a so-what patch.



- U2 - Same, with quick sweep with a tongued attack that seems a bit distorted, not my favorite.
- U3 - Same as U1 only with a medium attack.
- U4 - Long attack, filter sweep with quick release.

#### UPPER BANK 3

- U1 - DX-7 electric piano initially, grafted to an organ body.
- U2 - Question Mark and the Mysterians Cheese Ball organ sound - great for 60's class reunions.
- U3 - Bright synthesized brass, good useable sound.
- U4 - Synthesized strings, real straight, no vibrato.

#### DISK 3

##### BANK 1

- L1 - Acoustic bass. This one is great. They've nailed it. Put the acoustic piano in the upper sample, get a drum machine, and you're a piano trio.
- L2 - Chorused with a slight wah.
- L3 - Soft attack with a long release.
- L4 - Acoustic bass is replaced with a baritone sax.
- U1 - Saxophone. Not bad in the baritone range but tenor and alto get thin and sound like a beginner's tone. I haven't checked, but I doubt this has been multisampled.
- U2 - No difference.
- U3 - Sax with a soft attack and long release.
- U4 - Sax an octave up from U1.

##### BANK 2

- L1 - Classical brass ensemble; baritone horn trumpet in unison. Good for fanfares.
- L2 - Tuba is added to L1.
- L3 - Soft attack with long release.
- L4 - Seems the same as L3.
- U1 - Trombone turning to trumpet in upper range. Very good sounds.
- U2 - Backwards blowing and slightly darker.
- U3 - Chorused and wahed.
- U4 - Muted with quick sharp attack.

##### BANK 3

- L1/U1 - Cellos/violins. Ensemble playing in unison aggressive bowed attack. Be careful of looping-noise in the highest range.
- L2/U2 - Softer chorus with filter sweep.
- L3/U3 - Heavy chorus with damped high end.
- L4/U4 - Plucked quick attack.

#### DISK 4

Drums and percussion - no program variations.

##### BANK 1

- L/U - Rock drums. From bottom to top: bass drum, snare, sidestick, tom toms, handclap, closed high hat, open high hat, cowbell, shaker, tambourine, ride cymbal, crash cymbal. These are probably sampled from a drum machine. My guess is a Linn or Drumtracks. They're pretty good except for the tambourine.

##### BANK 2

- L/U - Electronic drums: bass drum, snare, tom toms, gun shot, dog bark, shaker, ultra-cheap high hat, gong cymbal, jet crash cymbal.

##### BANK 3

- L/U - Orchestra percussion: temple blocks, vibraslap, small bell, tympani, gong.

#### DISK 5

##### BANK 1

- L1/U1 - Acoustic piano - This is an octave up from the piano on Disk 1.
- L2/U2 - Piano with filter sweep.
- L3/U3 - Detuned honky-tonk effect.
- L4/U4 - Plucked muted piano strings.

##### BANK 2

- L1/U1 - Marimba; crisp, hard mallet.
- L2/U2 - Chorused marimba.
- L3/U3 - Muted sound - sort of like a softer mallet is being used.
- L4/U4 - Soft attack and long sustain make it sound like blowing in a coke bottle.

##### BANK 3

- L1/U1 - Fender Rhodes electric piano. This a 70's Rhodes with the mushy bottom end.
- L2/U2 - Same as above only chorused.
- L3/U3 - 80's Rhodes sound with bright overtone - a la Bob James (theme from TAXI).
- L4/U4 - Same as above only chorused.

DISKS 6, 7, 8, and 9 were reviewed in Issue #4.

Having finished "catch-up" with the older disks, next month I'll be doing more of a in-depth review on Disk #10, & #11, and any others that make it to me in time.

Erick Hailstone studied composition and arranging at the University of Nevada and at Berklee College of Music. He has been involved with synthesizers and related technology for the past seven years. Primarily a guitarist, his orientation has been in performing and recording with these devices.

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#### MIRAGE OPERATING SYSTEM VERSION 3 UPDATES

Since the Mirage's Operating System is stored on disk, Ensoniq is able to upgrade with each Sound Diskette or Blank Formatted Diskette. Version 3 (and higher) of the operating system offer some important new features that will enhance the Mirage.



The Mirage's Operating System is loaded into the Mirage when the system is first turned on or when you press Load ALL, Enter on the Mirage Keypad. We recommend that you load the most current version of the operating system into the Mirage at the start of any session. To check the version of the operating system currently loaded into the Mirage, select Parameter 97.

Mirage Operating System 3 and higher offer the following performance enhancements to the Mirage:

1. The ability to receive information from various external MIDI controllers such as: modulation wheel, breath controller, foot pedal, data entry slider, and volume pedal.
2. The ability to receive MIDI After-Touch information.
3. The ability to receive MIDI Polyphonic After-Touch information.
4. The ability to send and receive MIDI disk loading and program change information.
5. The ability to load a sound from disk and instantly select any of the four programs.
6. The ability to turn off local mode, thereby allowing the Mirage to transmit out MIDI information but not sound internal voices.

The following new parameters are now available on the Mirage. These are in addition to the parameters outlined in the Mirage Musician's Manual (pages 26-31).

<u>MIDI PARAMETERS</u>	<u>Range</u>	<u>Default</u>
78/LFO Modulator Source	(0-9)	1
79/MIX Modulator Source	(0-9)	1
80/After Touch Modulation Depth	(0-63)	63
84/MIDI Function Enable	(0-3)	2

#### KEYBOARD PROGRAM PARAMETERS

30/Local On/Off (On/Off) ON

You can save any of your own values of these parameters on your operating system diskette by selecting Parameter 14 and pressing the Enter button.

#### EXTERNAL MIDI CONTROLLERS

The Mirage can now receive information from external MIDI controllers which affect LFO modulation (Parameter 78) and MIX modulation (Parameter 79). You need to set up the Mirage by selecting these parameters and entering the following controller numbers:

<u>Controller Number</u>	<u>Controller</u>
0	No External Controller
1	Modulation Wheel
2	Breath Controller

4	Foot Pedal Controller
6	Data Entry Slider
7	Volume Pedal
8	After Touch
9	After Touch - Polyphonic

Note: To use an external controller for MIX Modulation, you must also set Parameter 32 on the Mirage to 0.

When using aftertouch from an external controller you can control the depth of modulation by selecting Parameter 80 and setting the range from 0 (no effect) to 63 (maximum effect).

Example:

This example works best with a MIDI controller equipped with after touch, such as the DX-7.

1. Connect a MIDI cable from the MIDI-out jack of the DX-7 to the MIDI-in jack of the Mirage.

2. Load in the electric guitar sound from Sound Diskette #6. This sound is a MIX mode sound which allows a mix between a straight guitar sound and a feedback sound by using a modulator. On the Mirage this is controlled by the modulation wheel.

3. Set Parameter 32 (Upper and Lower) to 0. This enables LFO modulation by the Mirage's mod wheel. You may want to save this setting to disk (Parameter 13).

4. Set Parameter 78 to 1. This enables LFO modulation from an external mod wheel.

5. Set Parameter 79 to 8. This enables MIX Modulation from after touch on an external controller.

6. Play the Mirage from the DX-7 keyboard. You can control the feedback effect by how hard you press on the DX-7 keyboard. You can also control LFO Modulation from the DX-7's mod wheel.

7. Adjust Parameter 80 to scale the after touch to your playing style.

8. Try setting Parameter 78 to 6. This will cause the LFO to be modulated by the DX-7 data entry slider. You will be able to control the LFO by sliding the data entry slider up or down.

9. Try setting Parameter 79 to 2. This will allow you to mix in the feedback effect with a breath controller.

#### MIDI PROGRAM CHANGE COMMANDS

You can now change sounds and programs on the Mirage from an external MIDI controller.

84/MIDI Function Enable (0-3) Default 2

This parameter has been changed from an Off-On switch



to a four-stage function:

Value:0 - Only MIDI key information is transmitted or received.

Value:1 - Key information and controller information are both transmitted and received.

Value:2 - Same as value 1 with the addition that program changes are both transmitted and received.

Value:3 - Same as value 2 with the addition that to change a program on the Mirage you must also press the MIDI+1/yes button on instruments such as the DX-7. This setting allows you to change sounds on your controller instrument without changing sounds on your Mirage.

Consult the owner's manual of your particular MIDI controller for the proper program transmit number. Following are two tables - the first for the DX-7 and the next for most other MIDI controllers.

DX-7	Mirage Program Number			
	1	2	3	4
Load All Sound 1	1	4	7	10
Load All Sound 2	2	5	8	11
Load All Sound 3	3	6	9	12
Change Upper/ Lower Program Number	13	14	15	16
Load Lower Sound 1	17	20	23	26
Load Lower Sound 2	18	21	24	27
Load Lower Sound 3	19	22	25	28
Change Lower Program Number	29	30	31	32
Load Upper Sound 1	33	36	39	42
Load Upper Sound 2	34	37	40	43
Load Upper Sound 3	35	38	41	44
Change Upper Program Number	45	46	47	48

Requires  
Cartridge  
Program  
1-16

Other MIDI Controllers	Mirage Program Number			
	1	2	3	4
Load All Sound 1	0	3	6	9
Load All Sound 2	1	4	7	10
Load All Sound 3	2	5	8	11
Change Upper/ Lower Program Number	12	13	14	15
Load Lower Sound 1	16	19	22	25
Load Lower Sound 2	17	20	23	26
Load Lower Sound 3	18	21	24	27
Change Lower Program Number	28	29	30	31
Load Upper Sound 1	32	35	38	41
Load Upper Sound 2	33	36	39	42
Load Upper Sound 3	34	37	40	43
Change Upper Program Number	44	45	46	47

Note: Changing programs from your MIDI controller will cause the Mirage to display only the value of the program (1,2,3, or 4). The first display on the Mirage will be blank.

Example:

1. Set Parameter 84 on the Mirage to 2. This will allow all key, controller, and program-change information to be transmitted and received.

2. If you select Program #3 on the DX-7 it will cause the Mirage to load Sound 3 and select Program 1.

3. Selecting Program 16 on the DX-7 will change the upper and lower programs of the Mirage to number 4.

4. If you set Parameter 84 on the Mirage to 3, you must press the +1/yes button on the DX-7 following the program selection.

#### LOADING SOUNDS AND TRANSMITTING PROGRAM CHANGES

You may now load a sound from the front panel of the Mirage and select a program number (1-4) at the same time. Also, the Mirage will now transmit program changes over MIDI.

#### Sound Loading Procedure:

When loading a lower, upper, or both sounds from disk, you can select Program 1,2,3, or 4 before hitting the enter key. This will load in the given program along with the sound being loaded.

#### Transmitting MIDI Program Changes:

If Parameter 84 is set to a value of 2 or 3, then loading a sound from the Mirage will transmit MIDI program-change information as outlined in the previous charts.

If you change programs with the upper/lower link switch (Parameter 25) set ON, then program changes 13 through 16 will be transmitted. If you change a lower program with the link switch set OFF, then program changes 29-32 will be transmitted. If you change upper programs with the link switch off then program changes 45-48 will be transmitted.

#### Example:

Press Load Upper 2 and enter a 3. This will load Upper Sound 2 from the disk and automatically select Upper Program 3.

Note that if Parameter 84 is set to 2 or 3, then the Mirage will also transmit a program change through MIDI as in the previous charts.

#### USING THE MIRAGE AS A MIDI CONTROLLER

The Mirage Keyboard can be set to transmit out MIDI information without playing sounds on the internal Mirage. The Mirage will still sound voices which are coming in from MIDI.

30/Local ON/OFF [ON-OFF] Default ON

When the switch is set on, the Mirage functions as normal. When set off, the Mirage will not sound voices played from the keyboard. This is a useful function when using the Mirage in a multiple-keyboard set-up or when using the Mirage with external MIDI sequencers.



# THE INTERFACE

To the Editor:

Questions:

1) What can I do to keep my disk drive from freaking out (mis-reading the disk and offering a backed-up-drain sample to the keyboard)?

2) Parameters 17 and 18 (MASOS) don't seem functional. I'm trying to copy a bass sound into the upper keyboard. Could there be something I'm forgetting?

3) Is there a User's Group in Denver?

P.S. Great publication!

Marty Pullam  
Denver, CO

[Ed. - If your keyboard is sitting rock-solid, and your disk loads are still sometimes good/sometimes bad, the drive head probably needs its alignment touched up. Service center time. Good timing on the MASOS questions - Steve Coscia has an article in this very issue giving a step-by-step example on the use of Parameters 17 and 18. If they still don't work, the problem may be related to your disk drive troubles. If you still have troubles after getting the drive fixed and following Steve's procedure, you probably need to exchange your MASOS disks.]

We have several readers in the Denver area but haven't heard of a user group yet. Maybe you can contact them through our (free) classifieds.]

Dear Transoniq Hacker,

Thank you for the reply to my query regarding memory merging upper and lower - it's too bad that can't be done.

I'm hearing rumors here in Los Angeles that there is a package forthcoming for the Mirage and the Macintosh computer for direct access to hard disk for 50 seconds or more of manipulatable data. Can you enlighten me on this?

Also, a tip for those of us waiting for the 50k Input Sampling Filters: You can already obtain this bandwidth via half-speed mastering techniques. Record the sound to be sampled at 15 ips, play back the recording at 7 1/2 ips with the Mirage's sample rate adjusted to give adequate sample time to capture the entire sound. Double the Mirage playback rate (i.e. tune up an octave or so) and you have almost doubled your effective sample bandwidth (and memory usage).

I've also found that using the line level input but compressing your input signal (I use a Vally People Dynomitz) helps get a better signal to noise ratio

and a more dynamically even wavetable recording. Also, I've had excellent results with the headphone output of a Sony WMD6 going directly into the Mirage line input.

Anyone in the L.A. area interested in trading samples should contact me at (213) 850-5268, or write: 7250 Hillside Ave, #108, Los Angeles, CA 90046.

P.S. Does anyone know of any Mirage software for the IBM-PC?

Until next time,

Doug Masla  
Los Angeles, Calif.

[Ed. - Thanks for the shared hints. We haven't heard any details regarding hard disks other than methods to use them to store large quantities of wavesamples. It seems like even the faster read time of a hard disk would get in the way of using it as sort of substitute for the Mirage's RAM. Of course, in this field, that doesn't preclude someone from coming up with a scheme that has the appearance of doing just that. If we hear anything, we'll publish it.]

To Whom It May Concern:

Could you please answer the following questions for me:

1) I have an IBM-compatible computer and wish to connect the Mirage to its RS-232 port. What hardware do I need, where can I get it, and approximately how much will it cost? I will write the software (I know that I need MASOS). Any software that I write, I will gladly share with Transoniq Hacker.

2) Is there some way that I can format diskettes myself? What computer are the diskettes formatted on?

3) What is the difference between the operating systems' version numbers?

4) How many back issues of the Transoniq Hacker are there? Can they be ordered separately?

One of my wishes for future versions of the operating system would be to allow the user to load a lower sound from disk into the upper sound memory and vice versa.

Thanks,

Jeffrey Richter  
Philadelphia, PA

[Ed. - Roland, Syntech, and Mimetics are among those



that make MIDI cards for the IBM. They should be available at a local dealer or through some of the mail order houses that advertise in magazines like KEYBOARD. They generally cost in the area of \$300.

Disk formatters are now available from both Triton Corp. (see ad) and Ensoniq. The one from Triton also allows you to copy the operating system so you can do things like update your disks. The one from Ensoniq doesn't do this, but, on the other hand, it copies itself!

Back issues of the Hacker are available for \$1 each. In some of the previous issues we've touched on the major differences in the various operating systems as they've come out. In this issue, there's info on Version 3.]

[Ensoniq - Since users are now able to buy various brands of disks for their samples, we strongly recommend that they use only high-quality disks such as Maxell (which is the brand that we'll be supplying through our dealers).]

Dear Hacker,

Issue #4 is the best yet!

In your reviews of the sound disks I would like more detail into how well they are made. The trumpet sound only uses 1/4 of the memory. Couldn't more wavesamples be used to improve the sound? Do they have a reason for this? Is there room for improvement on these factory disks? I would like to have the review include the number of wavesamples used and some commentary on the programs that go along with them. These additions would make the reviews even better. How about some reviews of Data 1's new disks? Since they advertise in the Hacker, it would probably be hard to be objective.

The bulk mailing of the Hacker causes people in my users group to get it weeks apart. I don't think the savings in postage are worth it for a week or two's difference in delivery time.

How about some suggestions on cleaning the disk drive?

How about some sampling tutorials that go beyond the Advanced Sampler's Guide? The ones in it just point you in the right direction.

Will the operating system in the Mirage rack mount be based on software or hardware - specifically, will my Mirage also be able to handle breath control and after touch?

Why can't you format a diskette using a good copy program on a Macintosh computer? (Tried and didn't work.)

I don't like the "Hammond Organ" on Disk #8. The levels are too high and the sound is not as good as the one I already have (user created). It was made

without an Input Sampling Filter or VES. I don't like having to change the balance of the keyboard to get the "Hammond" softer.

I would like suggestions on how to go about mixing sounds. How does one move things around using MASOS without getting into a mess? I've heard that the move command doesn't work if things aren't the same size.

I think a lot of people could use help on how to use the different samples effectively. The sequences on the disks are of great help. Can someone feed them into a computer and print out the notes in music notation? This would speed up learning the sequences which help you get the hang of how to use the samples.

Could someone do the "listening test" for digital samples (mentioned in KEYBOARD magazine, November 1985, page 84) and share the results?

Do you think the Mirage sequencer could ever have a time-correct and metronome, and a storage capacity equal to dedicated sequencer (i.e. 7,000 notes per song)?

Sometimes when recording using a QX-7 sequencer, I will play a certain note and it will not release - it just keeps playing. It seems to be a glitch in the system, because it happens occasionally with sustained notes. To get the note to stop I had to change a program on the Mirage.

John Adams  
Elmhurst, IL

[Ed. - Most of the points you've brought up are things that we're getting to in one way or another as space and time permit. We've passed your comments on to our disk reviewer. We still haven't received any review disks from Data 1, but there's a letter from another reader giving his impression. (As you can see, we don't hesitate to print negative comments regarding advertiser's products - our first responsibility is to the reader. Of course, there's always the chance that he got a random lemon - so I'd wait for further comments before deciding.)

Regarding the bulk mailing: There's no question that issues #3 and #4 had a bad time at the Post Office. We've been hassling them, and I believe it made a difference on #5 (at least we got the one that we mail to ourselves about two weeks quicker). Supposedly, bulk mail should only take two or three days more than first class. This should also get better as our number of subscribers increases and allows us to do a "finer sort."

Regarding formatting on a Macintosh: We haven't tried it, but another reader has told us that Copy II Mac does the job.

Regarding the operating system: See this month's info on Version 3.



Regarding printing out the notes from the sequences: You might look into getting a demo of Passport's "Polywriter" software. It may be able to handle this.]

[Clark's comment on your sequencing problem: Your QX-7 doesn't seem to be receiving and/or recording all of your note-off information. Make sure that you release all of the Mirage keys before you stop recording. Also, there's a bug in early versions of the Mirage Operating System that might be causing this - make sure you boot up with Version 2.4 or higher. If that still doesn't catch it, the next step is to start swapping gear to see if the problem's in the Mirage or the QX-7.]

Letter to the Editor -

Hello, Clark, Eric, Jane, and staff - Thanks, Clark, for a good, in-depth response to my questions in the last (#4) issue of the Hacker. That newsletter has become my most valuable musical resource to date.

I'm truly impressed by all of Ensoniq's diskettes; they are consistently of great quality. I've often wondered about the quality of third-party diskettes, and in the absence of reviews in the Hacker, decided to finally try one out for myself. This letter constitutes a one-person's-opinion review of sorts, of Data 1's diskette #1 (percussion/drum sounds).

To set the mood for this: Data 1 shipped the diskette on October 20, charging me \$29.95, along with a note saying that effective October 20 (that day!) the price would go down to \$25. I know that business is business, and it's not the extra \$5 I'm complaining about, but charging me the extra money on the same day that the price went down just doesn't seem to be the way to win friends and influence people. Anyway, I thought that if it's a great disk, it'll be worth it in spite of the price. Trouble is, by my ears, it's a LOUSY disk.

The diskette first struck me as seriously lacking the frequency range of an Ensoniq diskette. Also, I thought that something was wrong with my amplification system, because I had to turn the volume up so much beyond normal to hear it. On top of that, the sounds were of uneven sample length, and flat, and one-dimensional for reasons that I couldn't even pinpoint. When I loaded Ensoniq's diskette #4: WOW! There was nothing wrong with my amplification system. There is NO comparison - Ensoniq's diskette wins by a landslide.

I don't know if Ensoniq just has access to better equipment, or if Data 1 just doesn't have it together, or if it's a little of both, but my very personal opinion is, potential buyers beware. Ensoniq certainly has a high quality product which becomes really apparent in comparison with Data 1. I would strongly suggest that anyone seriously considering a Data 1 diskette hear one first, or at least order the sample cassette. The diskette that I bought is a first-class lemon, unuseable by my standards. I've already labelled it as a blank, and plan to recycle it as soon as I have something worthwhile to store.

Sorry about the harsh opinion, Data 1, but it's the truth as I see it.

Cheers!  
John Bartelt  
Paso Robles, CA

[Ed. - Very sorry to hear about your trouble with your Data 1 disk. We passed your comments on to Data 1. They pointed out that you evidently forgot about a request you made in your original order (of which they sent us a photocopy) to send you a demo cassette in place of a refund in the event that the price had changed from \$29.95 to \$24.95. Anyway, they also sent out a refund for \$5 when we told them about your situation - so, by now you should have received the \$5 in addition to the tape. They also sent us photocopies of a couple of letters from customers commenting very favorably on their demo tape and on Vol. 2. We still haven't received any review copies and would greatly appreciate hearing from other readers regarding any and all disks from any vendor. The remainder of Data 1's response follows.]

[Data 1 - We were surprised to hear John Bartelt's comparison between our Vol. 1 diskette and the Ensoniq diskette. On the matter concerning the price change, John should have received a refund. We sent him a check on 11-4-85.

John should contact us so we may check to see if the diskette we sent him is defective. The sounds on his diskette should be of high quality. The demo cassette includes sounds from this diskette taken directly from the Mirage. If the cassette is returned, the price is refunded or applied to the order of another diskette.

There is also an updated version of Vol. 1 available now. We'll send it out free of charge to customers that return their early Vol. 1 diskettes. (And, we pay the freight.)]

Dear Editors:

I recently spoke to one of you regarding Mirage technical information. I have gathered a modest amount of information on the digital aspects of the machine. Enclosed is a packet containing that information (excluding, of course, a three-ring binder full of IC data sheets). I have also started to disassemble the PROM code.

I would greatly appreciate any information that you could provide. Of special interest is information concerning the R1107-11 chip; the Mirage OS and MASOS; and the disk format.

I am an electrical engineer by profession, so highly technical and/or sketchy information is satisfactory.

Many Mirage owners seem concerned about the reliability of the disk drive. I happen to own one of the (supposedly) few Mirages that has problems. For your records: After about 30 days of ownership, my machine developed intermittent drive errors. The drive would spin and then hang up. By removing and



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reinserting the disk several times, I could get the machine to unlock and successfully load. I returned the Mirage to my dealer who sent it to an Authorized Ensoniq Service Center. After a long six weeks, my Mirage was returned with a note saying the drive had been replaced and "checked out OK."

Although the first disk I tried booted correctly, I found that sound #3 of all my disks was impossible to load. Sound #2 and higher sequences were intermittent on other disks. One disk would not load at all. All disks were checked on my dealer's machine and worked fine. Parameter 99 (Disk Controller Status) after these failures read 08. I believe this code reflects the WD1770 disk controller status register and indicates a Cyclic Redundancy Code error. I have since sent the Mirage directly to Ensoniq for repair (through my dealer, of course). That was two weeks ago and I have yet to hear from them. Their service promptness needs to be drastically improved (actual disk drive replacement appears to require about 45 minutes of comfortably paced work).

Thank you for reading this rather long letter. I appreciate the service that your organization is providing to Mirage owners. I hope to contribute more information of my own in the future.

Sincerely,  
Scott Willingham  
8 Avis Street  
Rochester, NY 14615

[Ed. - And we appreciate the information that you sent us. The partial memory map is reproduced

elsewhere in this issue. It should help other hackers on their way. Ensoniq is looking forward to seeing more and more people start digging into their machine (although they're still shy about their schematics, etc.). They feel that this should be accelerating now that the first ones shipped are coming out of their warranty period.

We know what you mean about slow service turnaround. Our Mirage had a minor problem with its sequencer, and we haven't seen it for four or five weeks now. Our local dealer tells us that this is fairly typical in the industry. Lucky for us, they let us have a loaner or we'd be dead-in-the-water.]

[Ensoniq - At Ensoniq we try to ensure that all units sent in for service are returned as soon as possible. The unit in question was received on October 9th at Ensoniq, evaluated, repaired and tested, and shipped out on October 15th. Both dealers and end-users will benefit by ensuring that the Mirages are returned immediately to Ensoniq upon receipt of their "Return Authorization Number" (given over the phone).]

FREE SAMPLES OF THIS ISSUE ARE BEING SENT TO ENSONIQ'S WARRANTY CARD MAILING LIST. IF YOU'RE ONE OF THESE UNFORTUNATE WRETCHES THAT DON'T RECEIVE ALL OF THIS WONDERFUL INFORMATION EVERY MONTH - STOP BERATING YOURSELF. REMEDY THIS TRAGIC SITUATION - MAIL \$15 TO: TRANSONIQ HACKER, 5047 SW 26TH DR, PORTLAND, OR 97201.