

TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

Surviving The Memory Shortage

By Clark Salisbury

All of a sudden, I seem to know a lot of people who own EPS's. Not too surprising, I suppose. It's a pretty popular keyboard. But one question seems to come up over and over. That is, "How do I get more sounds into my EPS at one time?" See, a lot of you EPS owners seem to be using the instrument for sequencing (this should come as a surprise to no one - the sequencer built into the EPS is about as good as they come) - and when your string sound takes up nearly half the available memory on an EPS WITH the 2X memory expander installed, well, it just might seem like there's not enough room in there to do any serious composition work. But don't despair, mon frere. You see, most of the factory samples have been maximized to show off the sound quality of the EPS - but not much attention has been paid to the efficient use of memory. So I thought it might be a good time to talk a bit about how to maximize memory on the EPS using existing samples.

There are three primary techniques for winning back memory in the EPS - sample rate conversion, deletion of unnecessary samples, and truncation (possibly involving re-looping) of samples. We talked a bit about sample rate conversion in my last article, so I won't belabor it here. Let's just make sure that the process is understood.

First, converting a sample rate down will free up memory. If you halve the sample rate for any given wavesample, you will also halve the amount of memory that the wavesample requires. You do run the risk, however, of introducing unacceptable amounts of distortion into a sample if you try to convert its rate down too much. For this reason, it is always advisable to work on a copy of your sample so that you can go back to the original should things not turn out the way you want.

The actual process of converting sample rates is easy as eclairs - simply select the wavesample whose rate you wish to convert (by pressing the "EDIT" button, underlining "WS=", and playing a note on the keyboard or using the UP/DOWN arrow buttons), pressing the "COMMAND" and then the "WAVE" buttons, and using the LEFT/RIGHT cursor buttons to select "CONVERT SAMPLE RATE". From here you can use the UP/DOWN buttons to select the sample rate you wish to convert to, and you can initiate the process simply by hitting "ENTER". Once conversion has taken place, you are politely offered the option of listening to either the "OLD" (original) version of the sample, and comparing it with the "NEW" version. You can tell the EPS to keep one or the other simply by underlining your choice and pressing "ENTER". Not much to it, really.

Deleting unnecessary samples is a bit more involved, but still not difficult. The actual process of deleting wavesamples couldn't be easier. With the wavesample in question selected, simply press the "COMMAND" button, the "WAVE" button, scroll until you see the "DELETE WAVESAMPLE" command, and simply press "ENTER". The EPS will ask you to confirm your selection - pressing "ENTER" again will do so. The trick is in knowing which are the "wavesamples in question". Let's go for an example.

The "FANTASIA" sound is included with your EPS as a standard sound - we'll use it for this experiment. You may want to load it now and follow along. Then again, you may not.

"FANTASIA" occupies some 700 blocks of EPS memory (remember, an un-expanded EPS has 1024 blocks of available memory, and an EPS with the 2X expander has 2048).

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Now, let's imagine that you want to use the "FANTASIA" sound in a sequence along with a bunch of other sounds. Let's also suppose that you are only interested in the "straight" sound, and won't be using any of the variations called up by pressing the Patch Select buttons.

Since the Patch Select buttons are generally used to call up layers other than the current layer, it's possible that there are some layers that needn't be present in EPS memory to make "FANTASIA" work in this application. It would follow that these layers could safely be deleted in our quest for more memory. Deleting a layer doesn't guarantee that we'll free up much memory, however, since the layer may only contain a copy of a wavesample that is actually residing somewhere else in memory. But if we can find layers with unique wavesamples that can be deleted, we stand to regain quite a bit of memory. Let's check it out.

With the "FANTASIA" sound activated on the keyboard, press "ENTER", then the "INSTRUMENT" button. You should be at the "PATCH" page (if you're not, or if you're not sure, pressing the "INSTRUMENT" button twice rapidly will get you there - the EPS allows you to go immediately to the "default" settings for many of its "pages" by using this system of double-clicking). As you can see, only one layer is activated, layer "1". By holding down the left Patch Select button, then the right Patch Select button, then both Patch Select buttons while watching the display, you will find that layers 2 and 3 are also used in the other available patches. But in our hypothetical situation, we won't be using either of these layers, so we can safely delete them. But first it might be nice to know if the wavesamples used in these layers are copies of other wavesamples, or unique. Let's find out.

Press the "ENTER" button, and use the cursor keys to underline "LYR=1". We now have layer 1 selected. Use the Up arrow button to change the display to "LYR=2" - we have now selected layer 2. Now use the cursor to underline "WS=ALL". Now play the keyboard from the lowest to the highest note. You will note that "WS=3" is now showing in the display, indicating that we have selected wavesample 3. Since the number 3 doesn't change as we play up the keyboard, it's a pretty safe bet that layer 2 is comprised of a single wavesample - wavesample 3. Just to be sure, hit the UP/DOWN buttons a few times. If the display toggles between the "3" and "ALL", we can be certain that there is only one wavesample in this layer. If any other numbers show up, then there are other wavesamples lurking in this layer somewhere (it is possible with the EPS to have a wavesample occupying space within a layer, but not be present on the keyboard).

Now that we've determined that there is a single wavesample (wavesample 3) in layer 2, it might be nice to know if it is a unique wavesample, or a copy. Make sure that "WS=3" is showing on the "EDIT" page, and then press the "COMMAND" and then the "WAVE" buttons. Scroll until the window shows "WAVESAMPLE INFORMATION", and press "ENTER". Scroll through the listings here. First will be "WS NAME" - wavesample name. Next you will come to "SAMPLE RATE" - this shows you what rate the original sample was taken at. Next you can find out what the "ROOT KEY" is - the key that will play back the sample at its original pitch. And one more press of the button will bring you back to "WS NAME". So how do we know if the sample is a copy? Well, if it were a copy, there would have been one more listing on this page. This listing would tell you not only that the wavesample in question is a copy, but from what original wavesample and layer the copy was taken. Since this information did not appear, we can be assured that we are dealing with an original wavesample.

So we now know that layer 2, which contains wavesample 3,

can be safely deleted, and that since we'll be deleting an entire wavesample along with the layer, we stand to regain a significant amount of memory. The next step is to perform this same series of tests on layer 3, the only other layer used in the "FANTASIA" sound. If we do so, we'll discover that layer three also contains a single, unique wavesample, number 4. Now we can go ahead and blow these layers and wavesample to "bit heaven".

Press the "EDIT" button, and underline "LYR=". Set it to "2" ("LYR=2"). Press the "COMMAND" and then the "LAYER" buttons, and scroll to "DELETE LAYER". Hit "ENTER". The EPS will want confirmation - hit "ENTER" again and layer 2 is history. Head back to the "EDIT" page, set "LYR=" to "3", and proceed to similarly annihilate layer 3. Now let's find out how much memory we've regained. Press the "EDIT" button, then the "INSTRUMENT" button. Scroll to the "SIZE=" page, and you'll find that we've whittled our 700 block sound down to 505 blocks. And we haven't compromised the integrity of the original sound in the least. Still, there may be a way to pare this sound down a bit more. Of course there's always sample rate conversion, but that's for sissies.

Take a look at the wavesamples that make up layer 1. There are two of them, wavesample 1 and wavesample 2, with wavesample one ending at middle C, and wavesample 2 continuing on up the keyboard (this information is all gleaned by watching the display while playing the keyboard after first hitting the "EDIT" button, and underlining "WS=", as you no doubt are aware). I don't know about you, but I'm a God Of Sampling, and I only need one wavesample in my "FANTASIA" sound, so I'm going to delete wavesample 1 (kids, don't try this one without parental supervision).

First, make sure that you're on the "EDIT" page, and that "WS=" is set to "1". Then press the "COMMAND" and then the "WAVE" buttons, then "ENTER" twice (the second time in response to the "DELETE WAVESAMPLE 1?" prompt). Wavesample 1 is now gone, along with the lower half of your keyboard. But not to worry - simply press the handy "SET KEYBOARD RANGE" button, and play the lowest C on the keyboard, then press the "SET KEYBOARD RANGE" button again (to exit the range setting function) and you'll find yourself with a complete keyboard again. You'll notice that the lower notes are not quite as crisp as they were before (because we're now stretching a single sample down in pitch a bit further than we really should) but come on - you didn't really use those notes that much anyway, did you? And if it's all that important, you could always delete the upper wavesample and stretch the lower one up the keyboard. But take a look at the memory used now - a mere 269 blocks, where once we were using 700. Not bad at all.

If you wish, save this sound to a new disk - don't save it back to your original disk. We wouldn't want to take a chance on losing the original "FANTASIA" sound.

Well, as usual, I'm running low on space. Guess we'll have to leave some of the really intense memory management stuff for next time. But I promise you, we'll be slicing samples up like a Cuisinart set to "frappe" - I guarantee it.



Bio: Clark Salisbury is a partner in the MIDI Connection, a Portland-based consulting firm. He has been actively involved in the composition, performance, and recording of electronic music for over 7 years and is now producing his own pop-oriented compositions. His favorite color is chrome.

Front Panel

RND (♪♪♪)

Yeech! That's the last time we use radioactive ink for our monthly color (Issue #37). It sure didn't look like that in the sample. Keep it away from your disks.

* * *

Several pieces of news from Ensoniq this month:

First off, they've completed the *"Essential Sound Library for the EPS."* This consists of 9 disks with 12 all new sounds. The set replaces the 6 disks that they shipped with the early EPS's. The really good news is that if you've sent in your warranty card, you'll be receiving this set FREE sometime during the first or second week of August. If you haven't sent it in, you should do so now. The set should be at your dealer by now if you want to go in and have a listen.

Secondly, since the full-blown *Advanced Application Guide for the EPS* won't be out until September, Ensoniq is rushing out what they do have (they call it an "Outline"), and will include it along with the Sound Library. It has more info on sampling and programming. Sequencing isn't covered.

Thirdly, since the 4X expander for the EPS is on hold till the price of memory settles down a little bit (see below), Ensoniq is modifying the 2X (formerly the ME1, now the ME1A) so it will have the proper "hooks" for a SCSI interface. This also entails raising the price from \$249.95 to \$349.95. To get the actual SCSI interface added, you'll have to take both the ME1A and your EPS to an authorized dealer after August 15th. The cost of the interface itself is \$199.95.

* * *

The electronic industry press reports that, after skyrocketing earlier this year, the prices of DRAM chips now appears to be stabilizing. In some cases the price has actually pulled back from earlier highs a little over the last month.

* * *

In the ol' "Secret Button" department, Dick Lord suggests pushing both the RECORD and MODES buttons on your ESQ-1 or SQ-80 simultaneously.

* * *

Word has it that Roland's D110, D10, & D20 all incorrectly interpret and crash upon receipt of polyphonic aftertouch commands from the EPS and SQ-80.

TRANSONIQ-NET HELP WITH QUESTIONS

EPS QUESTIONS - Garth Hjelte. Advent Productions. Pacific time (WA). Call anytime. If message, 24-hour callback. (206) 242-9220.

MIRAGE 24-HOUR HOTLINE - M.U.G., 914-963-1768.

ESQ-1 AND SQ-80 QUESTIONS - Tom McCaffrey. ESQUPA. 215-750-0352, before 11 p.m. Eastern Time.

ESQ-1 QUESTIONS - Jim Johnson, (602) 821-9266. 8 a.m. to 5 p.m. Mountain Time (AZ).

ESQ-1 QUESTIONS - International, Brendon Sidebottom, (03) 689-5731 Australia. No calls between 4 a.m. and 10 a.m. Australian Eastern Standard time.

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

MIDI USERS - Eric Baragar, Canadian MIDI Users Group, (613) 392-6296 during business hours, Eastern Time (Toronto, ONT) or call MIDILINE BBS at (613) 966-6823 24 hours.

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

MIRAGE HARDWARE & FIRMWARE - Scott D. Willingham. Pacific Time (CA). Weekdays: 6-9 p.m., Weekends: 12-9 p.m. (213) 397-4612.

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

MASOS - Pete Wacker. Whenever. (602) 937-1177.

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!)

BACK ISSUES

Back issues are \$2.50 each. (Overseas: \$3 each.) Issues 1-9, 11, 13-19, 21, 22, and 27 are no longer available. Subscriptions will be extended an equal number of issues for any issues ordered that are not available at the time we receive your order. ESQ-1 coverage started with Issue Number 13. SQ-80 coverage started with Number 29, (although most ESQ-1 coverage also applies to the SQ-80). EPS coverage started with Number 30. Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. Reprints in our "Quick and Dirty Reprint Series" are available: MIRAGE OPERATIONS, for \$5, and MIRAGE SAMPLE REVIEWS for \$4. Each contains material from the first 17 issues.

HYPERSONIQ NEW PRODUCT RELEASES

MIDImouse Music announces their *SONICFLIGHT* Series of software. Among the first of the *SONICFLIGHT* releases is *ESQ-1/M/SQ-80 CAPTURE!* - a powerful and comprehensive programming tool for the Ensoniq synths. *CAPTURE!* runs on an Atari ST and makes full use of GEM, pull-down menus, special icons, multiple movable windows, plus access to all MIDI System functions, and Patch Editing / Librarian functions. Retail price is \$99.95. For more info, call or write: MIDImouse Music, PO Box 877, Welches, OR 97067. (503) 622-4034.

Thomas Metcalf (sound designer for Ensoniq Corp.) has now made available to the public his first collection of original musical compositions - appropriately entitled *"ONE"*. Orchestral and dynamic, this music is not jazz, minimalist, rock, or new age. *"ONE"* has been endorsed by both Larry Fast (Synergy and Peter Gabriel albums) and Craig Anderton (editor of *Electronic Musician*). You may receive your own copy of this real-time duplicated CrO2 cassette by sending \$6.00 to: Thomas Metcalf, PO Box 68, Paoli, PA 19301.

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AKAI • ALL

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ENSONIQ • ESQ-1, ESQ-m

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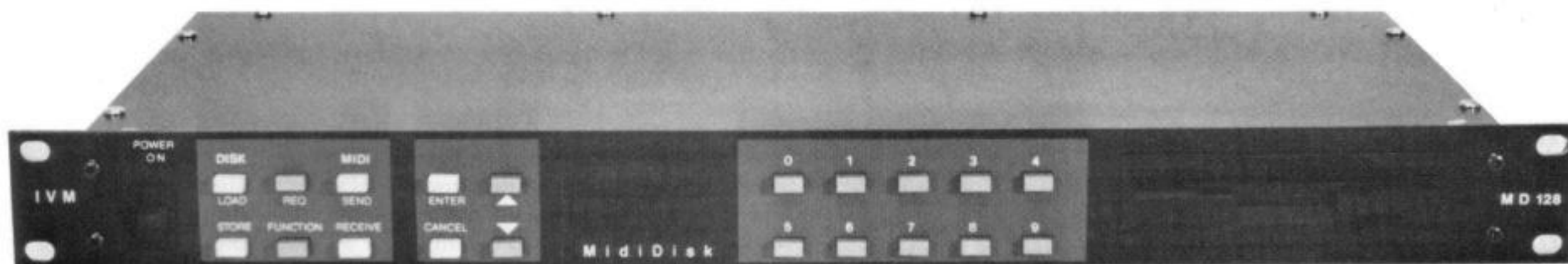
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MIDI Sound Creation Interface IBM - Mirage Visual Editor

Reviewed by Phil Rosine

FOR: Mirage.
PRODUCT: MIDI Sound Creation Interface.
PRICE: \$59.95.
FROM: Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts.,
Lindenwold, NJ 08021.

Oh, no, another VES for the IBM and the Mirage. Flip. Next page. Wait a minute! If you have an IBM, Roland MIDI card (or equivalent), and Mirage, but don't have a VES, the time has come.

Here's a full feature IBM VES for \$59.95 ... that's right \$59.95. MSCl: Mirage Sound Creation Interface by Donna Murray and Jeffrey M. Richter. I'm not going to be able to detail everything this program will do, but I am going to include a table of features based upon the comparison table published in the Hacker Issue 21 (March, 1987). You can compare for yourself.

MSCl requires a Mirage (obviously), MASOS, an IBM PC (XT, AT, even a PS/2 -- I tried the demo program on a Model 80 and it worked fine, but I don't know of a Roland MPU card for the micro channel machines), and a Roland MPU-401 MIDI card. The MIDI card does not have to be a Roland card, it just has to act like one. I tried the program with two non-Roland cards and it worked fine. The one catch is that the PC must have a CGA card (EGA & VGA will work). It will not work with a Hercules graphics card.

MSCl is a menu based command driven program. Sounds like a contradiction in terms, but it's true. The system has 13 screens which display parameter settings and waveforms plus the available commands. At least most of the commands. In some cases commands are available which are not listed on the screen menu, although they do appear on the prompt line. All commands are single character entries (mostly mnemonic) which execute when you hit the keys. Thus you can run the program without referring to the menus once you get the feel of things.

The VES will display all of the Mirage parameters and allow you to change them, save them, etc. When sampling you can play the sampling frequency as a tone on the computer speaker as an aid in matching it. The graphics display will display a full 256 pages (either the upper or lower wavesample) and toggle between the upper and lower samples. Scaling allows you to control how much is displayed (and thus the detail shown).

When editing a wavesample you can use a free-hand draw feature (use either the cursor keys or a joystick) to change portions of the sample. Perhaps more important, a number of functions are available for manipulating the sample. These include: fade in/out, bilinear fade in/out, scale (change sample volume), attenuate volume, invert, reverse, replicate, rotate left/right, add (two sample sections), copy, interpolate (expand a portion of the sample, effectively lowering pitch by one octave), smooth, and normalize (increase volume to use the full dynamic range). Whew. (I can just imagine what my old tech writing teacher would say about that "sentence"... hope Jane isn't that picky.) You can also perform MASOS functions while using MSCl. A looping screen can be used to visually match the loop start and end points. A mini sequencer allows notes to be played while editing so that you can hear the results of your manipulations.

The manual for MSCl is not too bad. It is 28 pages long and explains the program reasonably well. The only real problem I had was getting things started. The manual has one short

paragraph on preparing the Mirage, which I read, but did not step through when I stated out. The catch is that after you boot the Mirage with MASOS you MUST turn parameters 91, 92, and 83 OFF before you start up MSCl on the PC. It's on page 4 of the manual, but is not emphasized. The real problem is with parameter 91 (computer port enable), because with it ON, the Mirage will change data after the PC sends it over the MIDI port, with very unpredictable results. Everything appears to work fine, but the results are arbitrary. No sweat, dummy, just follow the directions. (I think my father told me that... maybe someday I'll learn.)

The manual does not teach visual editing. You will have to learn some of the tricks by experimentation. In fact, I expect that is true of all visual editing systems. Many articles in the Hacker tell us that a VES is a must for serious sampling. That may be true, but a VES is not a cure-all. VES does not stand for Very Easy Sampling. You will have to expend a lot of blood, sweat, and tears (W. Churchill, not the band) before you get it together.

All things considered, MSCl is a real value for the price. If you already have the hardware and don't have a VES, get it today. If you're thinking of investing, look at this one.

Postscript

Before I sent this review in, I retested MSCl and found a few bugs. Really odd bugs. I called Jeff Richter. He said he'd fix them and send me a new copy. I called Jane and said the review would be late. Jeff was true to his word. I got a new version in a couple of days. Tested some more and found another oddity. Not a true bug, just a strange result. Jeff worked on it some more and I tested some more. Finally we traced down a video driver that was overwriting memory under certain circumstances.

All this proves the software engineering rule that: "You can never prove a program correct by testing. You can only prove it incorrect." A program of this type is so large and complicated that all possibilities cannot feasibly be tested. Perhaps they cannot all ever be tried. Jeff Richter (whom I haven't met -- a little matter of some 2000 miles) seems to be a very conscientious software developer. He worked very hard to find the answers to my problems. If you buy this and find another bug of some kind, call him. I'm sure he'll try to fix it and get you an update. It's nice to see that kind of workmanship in today's computer world.

MIDI Sound Creation Interface IBM - Mirage Visual Editor

Feature Table

This is based upon the table which appeared on page 6 of Transiq Hacker, Issue Number 21, March, 1987. This table listed 8 Mirage visual editors for comparison of features.

Retail Price: \$55.00
Demo Disk: Yes, \$5.00
Update policy and price: Unknown
Computer system required: IBM PC or compatible (works on PS/2). Requires CGA (EGA or VGA). Does not work with Hercules or Leading Edge monochrome graphics.
MASOS included: No
Compatible MIDI interface: Roland MPU-401 or compatible.
Copy protection: No
Hard disk installation: Yes

User interface: Menus and keyboard commands.
 On-line help: No
 Keyboard display: Yes
 Notation: Follows Mirage conventions.
 Number of screens: 13
 Mirage parameter printout: Yes (screen dump).
 Graphic display of filters & envelopes: Yes
 Wavesample printout: Yes (screen dump).
 Save wavesample to computer disk: No
 Perform Mirage disk functions: Yes
 Max wavesample displayed: Entire (w/scaling).
 Max wavesample in memory: Entire (both halves).
 Benchmark: Not tested -- depends upon computer used.
 Zooming capability: 2 pages.
 Simultaneous max & min displays: No
 Send "Play Note" command to rack: Yes
 Simultaneous view & play: Yes
 Editing mechanism: Cursors, joystick, commands.
 Looping aids: Loop splice display.
 Interpolation supported: Yes
 Wavesample synthesis: No
 Ability to exchange samples from other samplers: No
 Size of manual: 28 pages, 8 1/2 x 11.
 Special features: Sequencer, fast scrolling, scaling of wave, wave manipulation functions (fades, copy, move, etc., etc.)

Bio: Philip Rosine is "by nature an iconoclast, by training a Forester and Software Engineer, by vocation a Programmer/Analyst, and only by avocation a musician." He's been doing music longer than the others (except for the iconoclast part), and currently has a Mirage, a DX100, a TX81Z, and assorted other toys in his studio (living room) where he is also known to play an occasional "real instrument" like the sax or flute. ■

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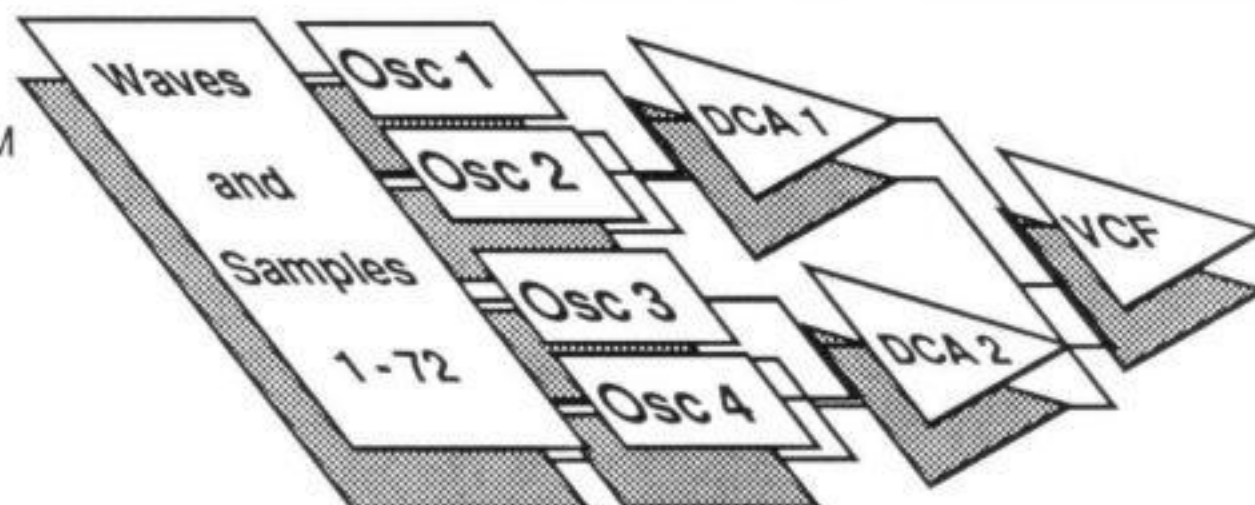
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Producing Harmonic Spectra With Amplitude Modulation On The ESQ-1 And The SQ-80

By John McDaniel

The amplitude modulation capability found on the ESQ-1's MODE page is a leading candidate for the feature most neglected by programmers. It can be confusing to work with, but with some patience, a calculator, and a pencil with a good eraser, entirely new areas of sound generation can be opened up on the ESQ-1.

First off, I'm assuming that your owner's manual, like mine, is dog-eared and tear-stained, and that you're reasonably familiar with how to get around the programming pages of the ESQ-1. It is easy to get confused when discussing pitches and the particular octaves in which they occur. For the sake of convention in this article, the term "middle C" will always refer to the pitch one ledger line below the treble staff, and/or key number 60 on the ESQ-1 (third C from the bottom of the keyboard). I will use the two programs listed below to illustrate points in this article.

THE HARMONIC SERIES

Pages 28-30 of your manual describe many of the ESQ-1's waveforms in terms of their harmonic content. These harmonics are a series of tones with specific interval and amplitude relationships to each other and to a fundamental (the lowest and usually loudest of the harmonics present in a sound, defining the basic pitch that we perceive. It may also be called the first harmonic). The harmonics lying above the fundamental are multiples of the fundamental's frequency. The accompanying table (see next page) outlines the first sixteen tones of the harmonic series built on the fundamental pitch C, with a frequency of 130.8 Hz. The frequency of each harmonic is listed in the row labelled ACTUAL. Note that each value is the fundamental (130.8) multiplied by the harmonic number in the top row (in the third column $3 \times 130.8 = 392.4$). The values in the TEMPERED row are the frequencies of the notated pitches as they occur in the equal tempered system ($A=440$).

Play the second C from the bottom of the keyboard (key #48) using the BASIC program above. Roll the MOD WHEEL back and forth. What you are hearing is a filter sweep in which maximum resonance is emphasizing the harmonics of the SAW waveform. Beginning with the MOD WHEEL all the way back, roll it forward very slowly, stopping when a pitch becomes emphasized and a buzziness enters the sound. The series of pitches produced by slowly opening the filter with the MOD WHEEL is the same as those notated in the table. Playing any other key will transpose the entire series of pitches, maintaining their relationships. We have just demonstrated that as the manual says, the SAW waveform "contains all the harmonics." When your manual describes certain waves in terms of their harmonic content, the numbers used should correlate to the numbers and interval relationships outlined in the table. Try other waveforms for OSC 1 in this program and compare their harmonic content to their description in the manual and to SAW.

AM CONCEPTS


When you assign an LFO to control the output of a DCA (tremolo for example) you are using amplitude modulation. The frequency of the LFO is low enough that we can hear each rise and fall in volume. The AM (Amplitude Modulation) portion of the MODE page uses OSC1 to control DCA2 at much higher frequencies than can be obtained with an LFO. To clarify: when AM=ON, OSC1 modulates the amplitude (loudness) of OSC2 by opening and closing DCA2 at high speeds (audible frequencies). In this arrangement, OSC1 and OSC2 are commonly referred to as the "program" and "carrier" respectively.

Amplitude modulation at such high speed produces "sidebands," which are frequencies both above and below the carrier. The upper sideband is the sum of the frequencies of the program and carrier, and the lower sideband is the

ESQ-1 PROG BASIC										BY: MCDANIEL													
		OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH				
OSC 1		0	0	0	SAW	OFF	0	OFF	0			0	0	0	SINE	OFF	0	OFF	0				
OSC 2		-	-	-	-	-	-	-	-			0	7	1	SINE	OFF	0	OFF	0				
OSC 3		-	-	-	-	-	-	-	-			0	0	0	SINE	OFF	0	OFF	0				
		LEVEL		OUTPUT		MOD#1		DEPTH				MOD#2		DEPTH									
DCA 1		60		ON		OFF		0				OFF		0									
DCA 2		-		-		-		-				-		-									
DCA 3		-		-		-		-				-		-									
		FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH					FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER		0	31	0	WHEEL	63	WHEEL	15					100	0	0	OFF	0	OFF	0				
		FINAL VOL		PAN		PAN MOD		DEPTH				FINAL VOL		PAN		PAN MOD		DEPTH					
DCA 4		63		8		OFF		-				63		8		OFF		0					
		FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			FREQ		RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1		NOT APPLICABLE																					
LFO 2		NOT APPLICABLE																					
LFO 3		NOT APPLICABLE																					
		L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK			L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1		-	-	-	-	-	-	-	-	-	-			0	0	0	0	0	0	0	0	0	0
ENV 2		-	-	-	-	-	-	-	-	-	-			0	0	0	0	0	0	0	0	0	0
ENV 3		-	-	-	-	-	-	-	-	-	-			0	0	0	0	0	0	0	0	0	0
ENV 4		63	63	63	0	0	0	0	0	20	0			63	63	63	0	0	0	0	0	20	0
		SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC					SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC		
MODES		OFF	OFF	OFF	0	ON	OFF	ON	OFF					OFF	ON	OFF	0	ON	OFF	ON	OFF		
		SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY							SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY		
		OFF		OFF		OFF									OFF		OFF		OFF				

ESQ-1 PROG AMPMOD										BY: MCDANIEL													
		OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH				
OSC 1		0	0	0	SINE	OFF	0	OFF	0			0	0	0	SINE	OFF	0	OFF	0				
OSC 2		0	7	1	SINE	OFF	0	OFF	0			0	7	1	SINE	OFF	0	OFF	0				
OSC 3		0	0	0	SINE	OFF	0	OFF	0			0	0	0	SINE	OFF	0	OFF	0				
		LEVEL		OUTPUT		MOD#1		DEPTH				MOD#2		DEPTH									
DCA 1		0		OFF		OFF		0				OFF		0									
DCA 2		0		OFF		OFF		0				OFF		0									
DCA 3		0		ON		WHEEL		63				OFF		0									
		FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH					FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER		100	0	0	OFF	0	OFF	0					100	0	0	OFF	0	OFF	0				
		FINAL VOL		PAN		PAN MOD		DEPTH				FINAL VOL		PAN		PAN MOD		DEPTH					
DCA 4		63		8		OFF		0				63		8		OFF		0					
		FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			FREQ		RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1		NOT APPLICABLE																					
LFO 2		NOT APPLICABLE																					
LFO 3		NOT APPLICABLE																					
		L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK			L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1		0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0
ENV 2		0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0
ENV 3		0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0
ENV 4		63	63	63	0	0	0	0	0	20	0			63	63	63	0	0	0	0	0	20	0
		SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC					SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC		
MODES		OFF	ON	OFF	0	ON	OFF	ON	OFF					OFF	ON	OFF	0	ON	OFF	ON	OFF		
		SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY							SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY		
		OFF		OFF		OFF									OFF		OFF		OFF				

Table of oscillator tuning values as they relate to the harmonic series



HARMONIC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
NOTE	C	C	G	C	E	G	Bb	C	D	E	F#	G	A	Bb	B	C
OCT	-1	+0	+0	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+3
SEMI	00	00	07	00	03	07	09	00	02	03	05	07	08	09	10	00
FINE	00	00	01	00	28	01	22	00	01	28	16	01	13	22	28	00
ACTUAL	130.8	261.6	392.4	523.2	654.0	784.8	915.6	1046.4	1177.2	1308.0	1438.8	1569.6	1700.4	1831.2	1962.0	2092.8
TEMPERED	130.8	261.6	392.0	523.2	659.3	784.0	932.4	1046.4	1174.8	1318.6	1480.0	1568.0	1760.0	1864.8	1975.6	2092.8

difference between the frequencies of the program and carrier. An example: a carrier with a frequency of 500 Hz has its amplitude modulated by a program with a frequency of 100 Hz. Each is a sine wave. The result is three pitches whose frequencies are: 400 Hz (500 - 100), 500 Hz (the carrier remains present in the final signal), and 600 Hz (500 + 100). Note that the pitch of the 100 Hz program is not present in the amplitude modulated signal.

AM AND THE HARMONIC SERIES

Let's apply some of the AM concepts to frequencies from the table. We will now use the second program listing AMPMOD. Set OSC1 to OCT=0 SEMI=00 FINE=00 and OSC2 to OCT=+0 SEMI=07 FINE=01. These tunings represent middle C and the G a fifth above it (both produced by playing middle C or key #60). Making sure that AM=ON on the MODE page play middle C. You will hear a C an octave below middle C, the G that OSC2 is tuned to, and an E a tenth above middle C. Now let's do the math using the numbers in the ACTUAL row. The carrier was middle C; its frequency as found in the table is 261.6. Add the frequency of the program (392.4) to the frequency of the carrier and you get 654.0; the frequency of the E a tenth above middle C. Finding the lower sideband by subtraction (392.4 - 261.6 = 130.8) yields the frequency for the C an octave lower than the carrier. Now let's make an aural comparison. Set the MODE page to AM=OF. Roll the MOD WHEEL all the way forward. This opens up DCA3. DCA's 1 and 2 are disabled when AM=ON on the MODE page. I set them to OUTPUT=OFF in the program listing so that when AM=OF only OSC3 can be heard. Now play the notes of the carrier and sidebands discussed above: the octave below, and fifth and tenth above middle C. Press down the sustain pedal to free your hands. Switch the AM on the MODE page back to ON; roll the MOD WHEEL back to shut off DCA3; and then play middle C again and listen to the amplitude modulation. Make this comparison several times. Notice the similarity of sound and that the E produced by the AM is slightly flat in comparison to the E sounded when playing three separate notes with OSC3. Be sure to roll the MOD WHEEL back to close DCA3 before comparison to the AM. Check the table and compare the frequency values of the equal-tempered E and the E calculated as part of a harmonic series built on C. The harmonic E is 5.3 Hz flatter than the tempered E. Compare other frequency values in the table. Notice that harmonics 11, 13, 14, and 15 are also "flat" to the tempered system. The OCT/SEMI/FINE tunings under each harmonic in the table correspond to the ACTUAL values to give us programs and carriers tuned to the harmonic series.

Another way to compute the sidebands is by adding and subtracting the numbers of the harmonic series associated with the program and carrier. In the example above, the carrier was the third harmonic and the program the second harmonic. The sidebands produced were the first harmonic (3 - 2) and the fifth

harmonic (3 + 2). Predicting the sidebands produced by AM is easy when the program and carrier are related by some interval drawn from the harmonic series. Another example: if we want to add the buzziness of a few odd numbered harmonics to a sound, we could choose harmonic 11 as the carrier and harmonic 2 as the program. The resulting signal will contain harmonics 9, 11, and 13 (11 - 2, 11 [the carrier], and 11 + 2). From the values in the column under harmonic 11 in the table set OSC2 to OCT=+2, SEMI=05, and FINE=16 for the carrier frequency. In the same manner, find OCT=0, SEMI=00, and FINE=00 as settings for OSC1 acting as the program. If you go through the comparison routine above you'll find that the D, F#, A triad formed by these upper harmonics is much further "out of tune" with the tempered scale than the first example.

Now set OSC3 to OCT=-1. Make sure AM=ON on the MODE page. Roll the MOD WHEEL forward to open up DCA3. OSC3 will now sound a fundamental in the correct octave (note that OCT=-1, SEMI=00, FINE=00 for the first harmonic in the table) to sound a relationship with the AM produced sidebands that is based upon the harmonic series. Try various waveforms for OSC3. The BELL and SYNTH waves are particularly interesting. Notice that the AM gives a different kind of bite to the FORMANT waveforms. Use the AM=ON/OFF on the MODE page as a toggle to compare the waveforms with and without the AM. Try moving the carrier to harmonic 12 which will produce the even harmonics 10, 12, and 14. Compare the sound of the odd and even harmonics. Also try changing the program to the third harmonic to produce harmonics 9, 12, and 15.

By now all kinds of programming possibilities may be popping into your head: new kinds of timbre modulation based upon the control of specific upper harmonics without having the lower harmonics getting in the way as happens when using the waveforms in memory, simulated notch filter effects, new bell and clang sounds (experiment with detuning the program and carrier a little for some good clang timbres), new sounds to use in the attack portion of programs, and on and on.

We have used SINE waveforms in the examples above for the sake of simplicity and clarity because a sine wave sounds only its fundamental, ie, no upper harmonics. Using the SQUARE waveform, which "contains the fundamental and all its odd-numbered harmonics," as the program (OSC1) will create more sidebands that are the sums and differences of the SINE carrier and each harmonic present in the SQUARE waveform. Because the amplitudes of the SQUARE waveforms's harmonics decrease as they go up, the amplitudes of the additional sidebands as they diverge from the carrier will decrease as well. (Using SQUARE as the program tuned to harmonic 2 in the second example above where the carrier SINE was tuned to harmonic 11 will produce lower sidebands of 9, 5, 1, and -3 [same as 3, but out of phase] and upper sidebands of 13, 17, 21, 25 ... etc. This can be proved from the

table with some extra math.) Waveforms described in your manual as containing harmonics in equal amounts should produce sidebands of equal amplitude. Using a waveform other than SINE for the carrier as well will produce even MORE sidebands. Whew! Time to forget the calculator and pencil. Just use your ear and experiment.

Be sure to try using the AM as an attack portion to be layered over other sounds. It is important to understand that using the ESQ-1's resident waveforms in the OCT=+2 range merely hikes up the first three octaves of the harmonic series (harmonics 1-4, consisting of three octaves and a fifth) and places the upper harmonics, which have so much to do with the timbre of a sound and its attack, far out of range in terms of the actual fundamental that you're trying to add a certain "ping" or "bite" to in the attack portion. Listen to a single OSC set to OCT=+2. Play up and down the top two octaves of the keyboard while quickly changing waveforms and you'll hear very little difference in the sounds. Amplitude modulation can make the "ping" or "bite" more alive by capitalizing on the timbral quality of the tightly spaced upper harmonics rather than the octave reinforced sound of a resident wave set in the OCT=+2 range. Find your best clav sound and layer some odd-numbered high harmonics with ENV 4 set to something like L1=+63, L2=00, L3=+12, T1=00, T2=12, T3=35, T4=20 and you'll hear what I mean.

I'll conclude by tying up a few loose ends and making some quick points. Exchanging the values of the program and carrier will produce the same sidebands, but remember that the carrier remains a part of the final signal, so parts of the sound will be changed. My examples using a low numbered harmonic for the program and an upper harmonic for the carrier are by no means the only kinds of relationships that work. ANY relationships drawn from the harmonic series will produce harmonically based AM spectra, many with a fundamental and useful without layering. Unfortunately, and I consider this a design flaw in the

ESQ-1, the volume of the AM signal can only be controlled by DCA4 and ENV4. If you've ever worked with modular analog equipment you may have already realized another drag: no control over the modulation index (amplitude of the program and therefore the degree to which it affects the carrier and amplitudes of the sidebands). The explanation about opening and closing the DCA at audio rates to produce sidebands applies more accurately to true analog equipment (VCA's) rather than analog/digital hybrids like the ESQ-1. I suspect that its operating system has another way of creating the amplitude modulation, yet the theory behind it is the same. The OCT/SEMI/FINE values were found by tuning them under AM with an unfiltered SAW waveform. They are as close as the resolution of the FINE parameter allows. When not exact I usually chose to err on the sharp side. Values for the harmonics above sixteen can be found this way. Remember that if you're using the values from the table and layering AM over another sound and want it in the proper octave of the sound's harmonic series that sound should be set to OCT=-1. When layering AM as a sustained part of a sound, don't let it be obvious: use it for subtle color. Try a little LFO panning. Also, OSC 3 can be used to add more harmonic content when layering. Modulating the pitch of the program and/or carrier in various amounts can produce some experimental sounds. Your best luck will probably be with layering, but some good single program AM patches can be achieved with some patience. Anyone with a question about this article, things not covered by the table, or who wants to share some AM info can reach me at my address: John McDaniel, 3312 Ibsen #2, Cincinnati, OH, 45209 or phone (513) 396-6633. Happy Modulating!

Bio: John McDaniel, a composer and saxophonist in Cincinnati, Ohio, is currently working on contemporary acoustic chamber works and electronic pieces. He writes in the mornings, teaches saxophone in the afternoons, and scares the neighbors with strange electronic sounds at night. ■

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Sorting Through The EPS Public Domain

Part II

By Steven Fox

[In Part I (Issue 37), Steven covered converting the sample rate, truncating the wavetable, tuning, normalizing, and fading.]

MAKE IT STEREO

Making your mono sample stereo can make a world of difference. You can't do true stereo sampling on the EPS, but you can create artificial stereo using a single mono WAVESAMPLE. "Stereoizing" a lame sample of a D-50 or DX-7 will make the notes leap out of your speakers. If you are only running your EPS in mono you obviously won't get the same effect, but shame on you for forking out \$2000 for a new keyboard and then running in mono.

In the three examples below I will use an INSTRUMENT which has just one LAYER, simply as an example. Later on, you might want to try to make a multiple layered INSTRUMENT stereo.

To find how many layers an INSTRUMENT has, press EDIT and move the cursor under LYR=x. Press the UP arrow, the different numbers represent the different layers. If the number remains "1" then you have just a single LAYER in your INSTRUMENT.

KEYBOARD PANNING

This one is the simplest way to add some spark to your samples. Press EDIT and move the cursor under LYR=x since you will be making a LAYER EDIT.

Press AMP and use the LEFT/RIGHT arrows until you find something similar to PAN=---*---. Press the UP arrow until the display shows PAN=KEYBOARD. Playing the keyboard now you will find that the lower notes come out of the left speaker and the higher notes come out of the right speaker. This will give you just a small bit of space in the stereo field between each individual note of a chord, which will subtly enhance the sound.

Another setting you might experiment with is PAN=RANDOM. This gives each new note a different random position in the stereo field.

DETUNING

This idea is taken directly from my Yamaha TX81Z. The basic idea is to pan a copy of the same LAYER hard left and hard right. Then detune one side a few cents higher, and detune the other side a few cents lower. When you do this on the TX81Z you end up using two voices for each note instead of just one. This is also the case with the EPS, but since you have up to 20 voices, that still lets you hold down 10 keys without losing any voices.

Press COMMAND, then LAYER. Use the LEFT/RIGHT arrows to select COPY LAYER. Press ENTER. The display will show TO INST=name. Press ENTER, and use the UP/DOWN arrows to select COPY=PARAMS ONLY. Press ENTER again and you should see LAYER 2 CREATED.

Press EDIT and you will see LYR=2 WS=ALL. Now press AMP and press the UP arrow until the display shows PAN=-----*. Press EDIT again, press the DOWN arrow to select LYR=1. Press AMP again and press the DOWN arrow until the display shows PAN=*-----. You have now panned LAYER 2 to the right, and panned LAYER 1 to the left. Playing the keyboard now you should not hear any difference in the sound except

that it might be slightly louder.

To edit the tuning for each LAYER press PITCH and use the LEFT/RIGHT arrows until you see ROOT KEY=xxx FINE=xx. Move the cursor under FINE=xx. Press the UP arrow until the value is +3. Press EDIT and select LAYER 2, press PITCH and press the DOWN arrow key until the value is -3.

Playing the keyboard now should give you a very lush, chorus-like effect, but without the phasing effect you get on the Mirage. You now might want to go back and adjust the detuning amounts to your own taste. By the way, if you ARE playing through a mono system, that familiar phasing effect WILL appear in the sound.

DELAY

This uses the same technique as above by panning two identical layers to either side, but instead of detuning, you make the start addresses of the wavetables in the second LAYER start a little (or a lot) into the WAVESAMPLE. I've found this most effective on sound effects and on synth pad sort of sounds. This technique also uses two voices, which halves the polyphony of your EPS, but the tradeoff again is a distinct improvement to the sound.

First, you need to copy LAYER 1 to LAYER 2, and pan each LAYER to opposite sides, exactly like you did in (6b).

Next you will be editing the wavetables in LAYER 2. If there is more than one WAVESAMPLE in your LAYER, you will need to do the following procedure to each WAVESAMPLE.

Select the correct LAYER and WAVESAMPLE and press WAVE. Use the LEFT/RIGHT arrows until you see the display START ADDR=xxxxx (xx). Gradually increment the start address and play the keyboard at the same time. I usually only need to change the start address to around (01) percent. At some point the sound will jump from being at the center of the stereo field and become a large sound seemingly filling the entire field between the two speakers. You may need to adjust the start address a little further to get rid of any phase cancellation.

A curious effect also has occurred. You will probably notice that the sound out of one speaker is now considerably louder than the other. This is due to an acoustic phenomenon called the "precedence effect". When two sounds occur at ALMOST the same time, even from separate speakers, your ears will perceive the sound that arrives second to be quieter by as much as 8 to 12 db. What this means is that you will now need to adjust the individual volume level of the two layers. Press EDIT, then AMP. Press the LEFT/RIGHT arrows until you see WS VOLUME=xx. Adjust this level for LAYER 1, and/or LAYER 2 until the sound appears to originate from the center of the stereo field.

Another delay trick you might try is quite useful with long synth samples and sound effects. In this case I'm thinking of a sample of a crackling fire which I did myself. The sound itself was just a long loop which looped from the very beginning to the very end of the WAVESAMPLE. I copied the LAYER then panned the two layers hard left and right. I then adjusted the start address of the fire WAVESAMPLE in LAYER 2 to (50) percent. This, by the way, is a neat trick which I've only seen on the EPS. You can actually set the loop start address BEFORE the actual start address of the WAVESAMPLE! The overall effect of this was that there appeared to be two very

distinct crackling fires, and I only used one sample to do it. I even made one further adjustment by raising the pitch of LAYER 1 by a semitone while lowering the pitch of LAYER 2 by a semitone.

GIVE YOURSELF CREDIT

One nice feature the EPS includes is within each INSTRUMENT you can name each individual WAVESAMPLE and LAYER. Naming the wavesamples and layers is not necessary and really can just be too much of a bother to do after you've spent an hour or more on your latest nose flute sample. On the other hand, since you've just spent so much time getting it to sound perfect, why not use these unused areas to insert your name and become immortal, or infamous, as the case may be. When someone down the line gets his hands on your nose flute sample and wonders who made it, he can simply find out by looking at WAVESAMPLE INFORMATION, or by selecting EDIT LAYER.

IN CONCLUSION

I haven't even touched on envelopes, key-pressure, filters, patch select buttons, LFO, crossfading samples, pitch tables, and some of the EPS' more esoteric functions. I've messed with them all to some extent, but they obviously require more in-depth discussion.

Still, applying these simple tricks to your own sounds as well as to the sounds you collect from elsewhere will result in a better

collection of sounds for everyone. Your efforts will be much appreciated by others, and your EPS will certainly love it. I'll bet if your EPS could speak it might say something like, "YOU'RE A COOL DUDE NOW".



Steve 'n Fox.

Bio: Steven Fox is 23, programs software as a hobby, and sells it to make a living. He is currently looking for a proper job (anywhere in the world except Seattle) either in the recording biz or as a programmer. Any offers???

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The Patch Bay Heaven's BBC Voice Series

Patch Reviews by Chris Barth

For: ESQ-1, SQ-80.
Product: BBC Voice Series.
Price: \$35 for 80 voice ROM, \$15 for 80 voice Data Cassette, \$10 for 80 voice Data Book, Free Demo Cassette.
From: Heaven, PO Box 2550, Saratoga, CA 95070. (408) 554-2922.

[Ed. - As we go to press, there is some question on whether or not Heaven is still in business. Even under the best of circumstances, Heaven has always been extremely hard to contact. We STRONGLY suggest that you call them before you send any money. If you can't get in touch, then call the Hacker (503-227-6848) for the latest word. In spite of these business problems, we're still printing the review simply because our reviewer was so impressed with the sounds. If you can get them, they'll be worth it.]

This month's selection of 80 patches arrives courtesy of Glenn Javaheri of Heaven. Glenn's package includes a demo cassette and his printed Soundguide, which lists in chart format all of the modulation effects, suggested ranges for his patches, and performance tips. My only complaints with this otherwise admirable packaging effort were with the cryptic abbreviations used as column headings: PLYPOL as a suggestion to play chords, WHLAMP to tell you that the wheel controls volume, and so on, all listed in vertical binary format. The demo tape is very laid back and includes a stream of consciousness narration which sounds like it was done at 3 A.M. after a hard day's night.

What concerns me most from a business viewpoint is Heaven's failure to deliver a full 160 patches to readers who ordered them from his ad, which has been advertising this number as available for months now. I don't know what the problem is, but this kind of thing is enough to turn some readers away from mail order entirely. I think some sort of explanation is in order.

With that aside, let me admit that the 80 patches which I do have make up one of the most impressive collections I've ever heard. The programming is consistently excellent and there are many new, different and usable sounds here. This is not a warm acoustic sounding set; this is not a glass-jars-dropping-on-a-marble-floor assortment; this is not a hodge-podge of weak, uninspired sounds. No, my friends, this is synth music for progressive rock and Eurorock fans. If you like Yes, Rush, Genesis, ELP, Foreigner, Depeche Mode, Journey, Wendy Carlos, the Pet Shop Boys, Toto, up to and including the Muzak which passes for New Age, then these patches are perfect for you. I played with the 80 voice cartridge for TWO WEEKS before I realized Glenn had sent me a nonprogrammable ROM cartridge; I hadn't even tried to edit any of the sounds during the initial exploration. That's a first for this reviewer.

Right away, I think of Larry Fast's synth work with Foreigner and his own act, Synergy. Sure enough, L.FAST is a fat sawtooth pad which stands fine on its own; layer it with any bell sound (I especially like QUAZAR from the Ensoniq cartridges) and prog rock fans will be in Heaven! There are a bunch of sawtooth pads and solo sounds to choose from. If you UZDWHL as the name suggests, the patch fades into silence. BGBAND is the typical ELP synth brass patch, using reed waveforms instead of the usual sawtooth. This is very effective by itself; it's even better layered over other synth brass patches which use sawtooth waves, since the latter can provide the body of the sound while the reed waveforms add just the right color.

There are five or six Roland D-50 styled patches which will cut through a rock mix like a knife through butter. It sounds to these ears like the ESQ-1 can get pretty close to this other

popular synth while doing things that will never come from a D-50. Rather than fight some of the digital noise which can be produced by the ESQ, Glenn makes the noise waveform the best part of the patch. In particular, D-50 9 is the biggest, loudest, noisiest breathy flute sound I've ever heard.

I assume that PPG 1 and PPG 2 imitate the sound of the German synth with that name. Whatever the case, here are two more distinctive, bright, modern sounding patches which are permanent keepsakes in my collection. LIPZG9 is a great vocal chorus which is very smooth and wonderfully appropriate for background pads. And the basses - Whoa! This bassist used to cart around two or three Acoustic 360 bass amps in the seventies and I never caught the sound of MONSTC! There are five or six other basses which cover most of the stock synth bass sounds you'd ever need for this kind of music. The percussion patches are in the Simmons synth-sounding category and they sound great played with my Roland Octapads.

If you're a Dr. Who fan or enjoyed the Hitchhiker's Guide to the Galaxy, you'll find two special patches which make this set is a must.

About the only acoustic patches in the set are two piano patches. One is dark, one is bright, and both are similar to

Ensoniq's PIANO2, but somewhat louder and fatter all around.

I could criticize some of the LFO vibrato settings, and it's not like I can use every single sound. But overall, there's no doubt in my mind that if you like this kind of music, the beginner will be delighted with this set and the pro will be able to make whatever minor edits may be required.

These are very distinctive, modern, synth-sounding patches. I could write another review just talking about how well these sounds layer over others in my collection, including some I had written off earlier. If your music is jazz or wedding marches, middle of the road, classical or country, then this set is not for you. But if you are tired of lame acoustic simulations and are looking for a new musical signature with an eighties flavor, I can't imagine a better place to start. Welcome my friends to the show that never ends!

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

SOUNDBANK from Fred's Music Shop

Reviewed by Patrice DeVincentis

For: SQ-80/some sounds for ESQ-1.
Product: SoundBank.
Price: 1040 sounds for \$39.95.
From: Fred's Music Shop, 212 Lancaster ave, Shillington, PA 19607
(212) 777-FRED.

Sounds and software, the ultimate commodities in today's music market place. These items are likely to cost and cost plenty. Research and development chew up valuable time and intelligence. SQ-80 owners have a gold mine waiting out there and it can be found in the new patch disk, SoundBank, available at Fred's Music Shop. Included on this disk are 1040 sounds. The price is a very reasonable \$39.95. This is a steal considering most other sounds cost upward of \$1/voice.

The disk includes sounds that range from bass sounds, through all the traditional instruments, analog and digital synth sounds and one bank of sound effects. The organization of the sounds by category is practical and saves time. Looking for a particular type of sound and finding it is not like hunting for a soundtrack job.

ESQ-1 owners do not be dismayed. Many of the voices are marked with a "1", indicating they are ESQ-1 compatible.

The sounds themselves are of good quality with the most outstanding being the piano and electric piano banks. Here is every electric piano sound you've imagined and the grand piano sounds are quite admirable. The string sounds go from warm strings with that analog sound, to sharp "bitey" digital strings, to delicate floating strings. My favorite string sounds are in Bank 21, - sweet and ethereal. The cellos are very impressive and the "AIRVOX" gives the D-50 good competition. Analog synth sounds include oldies like the Moog, ARP, OBX, and Prophet V. The warmth of these is quite surprisingly like the originals. The synth pads are warm and responsive - very good for electronic music enthusiasts. The sound effects bank offers some interesting sounds from "FOREST" to a European ambulance. The video patch is great!

There are some nice overall effects included. For instance, there are stereo panning effects with some of the sounds - useful for Hammond effects. The modulation effects can be used to add vibrato and some filter effects. Almost every sound

uses the Poly-Key pressure sensitivity to add some kind of modulation or effect.

What about live performance? A working musician could create several custom disks containing specific sounds in a specific order, and have an entire evening's worth of timbral bliss with no compromise or repetition. Most of these sounds are useful to the performing musician and the others are almost invaluable in the studio.

The SoundBank disk does not require a two pound technical manual, but it does come with brief but concise documentation. A list of SoundBank files makes it easy to find what you're looking for. Sound types included are: bass, bells, brass, woodwinds, guitar, harp, clavinet, organ, drums, mallet percussion, strings, analog and digital synths, and FX. An explanation of what to expect when downloading to an ESQ-1 as well as MIDI overflow mode is included. One thing that could have been helpful would have been a listing of performance effects, (i.e. modulation), as well as a complete list of sounds by bank, as this helps to save time. Some experimentation is required to gain a full working knowledge of the timbral possibilities presented by SoundBank.

There is very little negative to report about this particular set. The only weak point this reviewer found was in the horns and brass sounds. Although some of these sounds are usable, they lack the fidelity and luster that are a part of the other banks.

All in all though, a better buy could not be found. Here you have over one thousand sounds. Every sound has its variations already included, so very little tweaking and re-adjustments should be needed. Top 40 sequencing is a breeze with percussion, bass, rhythm, and lead all being there ready to go. Each disk contains back-ups of most of the banks and two copies of the SoundBank. This reviewer was hard pressed to stop playing as each sound seemed to be more interesting than the last.

BIO: Patrice DeVincentis holds a masters degree in music from Temple University. President of "Alternative Music", she does solo concerts, teaches, writes, and runs a 12-track studio. Her second album for Jazzical Records, "Opulence" is currently in the mix-down phase of production. ■

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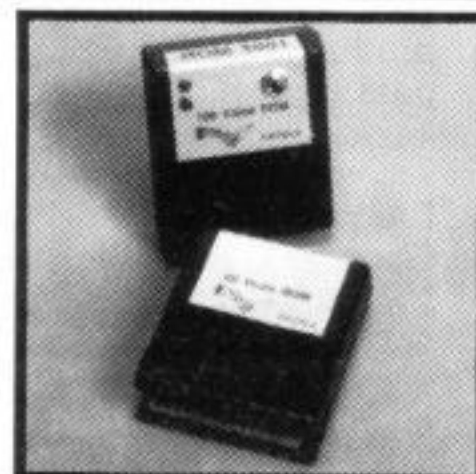
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Hackerpatch For The Mirage

By Barry Carson

Like hardy pioneers, who one morning awake to find ranch houses and suburban cape cods sprouting in their precious wilderness, Mirage owners, some of whom bought an instrument from Ensoniq before most people knew how to pronounce the company's name, are now finding their once private turf, the Transoniq Hacker, overflowing with EPS players getting ready to move in. Resentment? Bitterness? One sore point may be the Hackerpatch.

Every month hot new sounds for ESQ players are available for free. Now SQ-80 owners get the same service and hey, most Mirage users were sampling before the SQ-80 was even invented! All these folks shell out the big bucks for new sounds on disk.

"How come?" the plaintive cry is heard, "How come no Hackerpatch for the Mirage?" How come, indeed?

As Jordon Scott pointed out in the October, 1987 Hacker, the Mirage is a synthesizer and a pretty well endowed one at that. But since it is a sampler and since a sampler's forte is reproducing accurate acoustic sounds, there doesn't seem to be much interest in exploring the synthesizer capabilities of the Mirage aside from using them to help create the illusion of an acoustic instrument. I'm sure that's why the synthesizer section of the Mirage exists and it's great to use it that way, but to never go beyond that is to never exploit the full potential of the instrument. Take the ESQ-1 for example. Built into the thing seems to be a group of piano waveforms (Since I live half a state away from the nearest Ensoniq dealer, I'm completely unfamiliar with the ESQ. This is information I've just picked up from the Hacker). I would be willing to bet that ESQ programmers use these waveforms for things other than piano sounds. Why? Because the ESQ only has a limited number of waveforms in it and to take full advantage of the instrument, one must exploit each of those waveforms to the limit (I'm also willing to bet that someday soon we will see a synthesizer with all the capabilities of the SQ-80, plus the ability to sample all of its waveforms from the real world).

Since Mirage users are spoiled by the ability to put any of an infinite number of waveforms into their instruments, they become insular in their attitudes toward these waveforms. Piano waveforms are used for piano sounds, oboe waveforms for oboe sounds and synthesizer waveforms for synthesizer sounds. What if you only had piano waveforms in your Mirage? Would you only play piano sounds all day? I doubt it.

Since every Mirage ever sold (as far as I know) came with either disk 1 or 100, let's all load that famous piano sound, roll up our sleeves, and prepare to explore the pleasures of the "HACKERPATCH FOR THE MIRAGE".

One of the advantages that synthesizer programmers have over samplers is in the realm of naming their creations. If you stick a mic in front of a piano and sample it, there is not much you can call it other than "Piano". You can become more specific ("Grand", "Steinway 9 Foot Grand", etc.) but not much more poetic. Synthesizer programmers on the other hand are allowed, nay expected, to become as outlandish as they can in naming patches. To that end I proudly submit the first offering in the "HACKERPATCH FOR THE MIRAGE", a split keyboard featuring the "ELFIN PLAYER PIANO" under the left hand and the "BOWED NEUTRON RODS FROM PURGATORY" under the right.

Let's get started. The most important thing to remember in setting up these sounds is to make sure you are working on the proper memory half (upper or lower) and the proper wave number (number 8 for both).

Parameter Number	Upper Value	Lower Value	Parameter Number	Upper Value	Lower Value
26	8	8	51	31	19
27	8	8	52	18	22
28	off	off	53	31	16
29	off	off	54	17	26
31	11	14	55	14	14
32	5	0	56	14	14
33	3	1	57	3	4
34	27	63	58	0	0
35	1	1	59	0	0
36	29	69	60	2C	0
37	7	26	61	93	6E
38	2	2	62	2C	6D
40	0	0	63	2C	6D
41	5	8	64	FF	FF
42	22	21	65	on	on
43	5	31	66	0	0
44	23	24	67	4	7
45	0	0	68	7E	80
46	9	4	69	63	63
47	5	2	70	20	17
48	0	0	71	99	99
49	0	0	72	26	61
50	13	18			

For those interested in doing more research on the Mirage as a synthesizer, the Jordon Scott piece makes for interesting reading as does a truly amazing article by Duane L. King in the July, 1987 Hacker. King found ways to synthesize drums, bass, banjo, and more using as his starting point the grim recitation of 'This is a blank formatted diskette' (as performed by some mysterious woman) which is present on all blank Mirage disks.

Bio: Barry Carson teaches English Literature and writes experimental music. He makes samples of medieval and renaissance instruments for the Mirage, Prophet and Roland samplers. ■

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SH - 01

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MR. WAVESAMPLE aka Jack Loesch

Review by Erick Hailstone

For: Mirage, EPS.
Product: Misc.
Price: \$9.95 per disk.
From: MR WAVESAMPLE, 162 Maple Place, Keyport, NJ 07735.
(201) 264-3512.

Some of you may have seen Jack's ads in the classifieds in the Hacker offering to sample almost anything for cheap. Well, Jack seems to be one of those guys with somewhat limited resources and a seemingly limitless imagination. Over a period of time Jack has sent the Hacker numerous samples. Since he offers a custom service I thought I'd make you aware of some of the things he's sent in and pick my favorites. Jack's services include organizing your samples for quick access, looping your samples, custom sampling, virtually anything you can't figure out or don't want to take the time to do on the Mirage.

Among Jack's zanier samples are selected cliches from "Leave it to Beaver" and the drum intro from The Trashmen's 60's hit "Surfin Bird". Because the original source material for these two samples is pretty lame, don't expect much in the way of frequency response. You can amuse your friends with such phrases as "Gee, Wally" and "June, I'm home". Also fitting into this novelty category are: Factory Noises, Ocean Liner Blast, Weird Machine, Farm Animals, Seashore/Sea Gulls, and Blizzard Wind.

Most of the other samples are combinations of synthesizers that many of us have. Among these are:

PROPHET 600 STRINGS - which is pretty much your basic analog string sound. It has a medium attack and release and a bit of chorusing. There is no velocity control from the keyboard so it responds like an organ (no change in volume by touch). All of the other programs (L/U 2-4) are the same. They have the chorusing disabled and are slightly brighter. The loop is noticeable but quite tolerable. The sound is big and fat works well in combination with digital strings to add warmth.

HOHNER E7 CLAVINET - This is a well done sample of the tried and true clavinet. The looping is noticeable but acceptable (string sounds like this are hard to loop). This sound is usable through most of its range. The program variations include chorusing, muting (which is great for imitating a muted Fender Strat), and a long attack and release with chorusing.

WHAM/EMAX OBX - These are analog sounds. The basic source of sound is similar to the above Prophet 600 Strings. In fact, by adjusting the ENV and FILTER parameters you could recreate these using that sample as source material. Standard fare.

EMAX BIG HAM - This is the sound of a Hammond organ with most (or all) of its drawbars pulled out. A little on the gritty side. The most amazing thing about this sound is the combination of the Mirage's detuning and the vibrato that was on the sample source to begin with. They combine nicely together.

DX7 STUDIO RHODES - This is an organ/electric piano sound with a metallic percussive attack. Variations include a useless subharmonic electric piano (hopefully used as the low end of some other program preset), a synth/piano (sort of like taking a brass sound and creating a quick attack), and a mellow sustaining organ sound with a metallic harmonic attack.

ROLAND PLANET 5, OBERHEIM - A fat analog synth sound, reminiscent of the Emerson solo in "Lucky Man" only polyphonic. Has a light chorusing and filter sweep. Standard program variations.

DX7 HEAVY BRASS - This is a bright gritty analog/brass sound with a slight wah attack. The variations include a fat chorused analog brass with no loop and sustaining for half a second in the top octave, analog brass with medium filter sweep and organ/like vibrato, and another analog brass sound which needs to come up an octave or two. The low range is unintelligible.

ROLAND 707 DRUMS RX11 CYMBALS - These are fairly well done samples of two drum machines - a nice combination of Roland drums and Yamaha cymbals. None of these samples are looped.

I'm sure Jack has a lot more sounds. I've picked a handful from those that were presented to give you a feel for what he does.



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.

Current Ensoniq Operating Systems

INST	OS	DISK	EPROMS
EPS	1.5.	X	
MASOS	2.0	X	
Mirage	3.2	X	
ESQ	3.5		X
ESQ-M	1.2		X
SQ-80	1.8		X

Ensoniq Clinic dates for August and September 1988

City/State	Dealer	Phone	Date
Amarillo, TX	Tolzien Music	806-352-5293	8/2
Bristol, TN	Morrell Music	615-764-2171	8/2
Canton, MI	Arnoldt Williams	313-453-6586	8/31
Chicago, IL	Guitar Center	312-881-8800	8/23
Lubbock, TX	Tarpley Music	806-797-5833	8/1
Mt Prospect, IL	Soundpost	312-259-0470	8/24
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Hackerpatch

By Sam Mims

HACKERPATCH is intended to be a place where patch vendors can show their wares and musicians can share their goodies and impress their friends. Patches designated "ESQ-1" will also work on the SQ-80. The reverse is not always true. Once something's published here, it's free for all. Please don't submit patches that you know to be minor tweaks on copyrighted commercial patches unless you have permission from the copyright owner. All submitted patches are subject to consideration for mutilation and comments by Sam Mims - our resident patch analyst. If you send in a patch, **PLEASE** include your phone number.

The Patch: PROGRAM: HIT and HIT1 by Tim Edwards, Durham, NC

If you don't have a Mirage and miss all those great orchestra hits, you can do just as well on your ESQ-1. It takes two programs layered to get a full-sounding weighty hit, and it needs to be played in octaves across the entire keyboard (ie, with all 24 oscillators cranking), so don't be disappointed by the sound of a single note.

This patch imitates a sound from Tomita's version of Stravinsky's "Firebird Suite." Tomita's hit is preceded by a few grace notes from the "flute" section, which I simulated with a sawtooth wave sliding up the scale before the rest of the hit sounds. For hits needed in rapid succession, the T1V envelope function gives an instantaneous hit if you bang down on the keys. This sound works best with a long reverb.

The Hack:

This is a nice simulation, producing a big sound. I like it best played over five octaves, with the middle octave left out - C1, C2, C4, and C5 for example. The flute "grace notes" are produced by OSC3 on the HIT program modulated by ENV2; changing L1 and L2 on the envelope changes the pitch of the grace notes, and changing T2 and T3 changes their speed. Playing hard speeds up the attack not by speeding up or eliminating these grace notes, but by speeding up the attack of the rest of the sound, thus covering them up. This is accomplished by the T1V parameter, as Tim mentioned, of ENV3 on both HIT and HIT1.

The Patch: PROGRAM: DRIPPY by Steve Munro, Denver, CO

This patch sounds best on medium and fast leads. Some changes you might try are turning MONO (on the MODES page) to ON, and changing the FREQ of LFO3 to 2 and the WAVE to NOISE.

The Hack:

This is one of those synth sounds that is nice - but hard to classify. Steve's suggestion for LFO3 changes the stereo panning a bit; my preference for this sound is a slow back-and-forth sweeping, so I left the WAVE set to TRI, and turned the FREQ to 7. I also prefer MONO turned OFF.

Since the sound is not emulating another instrument, we're freer to experiment around with waveforms and the like. Try changing OSC1 to PULSE, VOICE1, SYNTH3, and 4 OCTS for interesting variations. Demented minds should try as well the three NOISE waveforms here - they make for pretty unusual sounds.

You can get another nice variation, with a punchy bass, by switching ON the AM on the MODES page. This works best if you tighten up the attack "blip" (caused by ENV1 modulating oscillators 2 and 3). Do this by changing T3 to 7 or so. This is a fun sound with lots of possibilities for experimentation.

The Patch: PROGRAM: CLAVD6 by Rich Trommer, Aurora, IL

Five years ago I sold my Hohmer Clavinet D6 for \$500. Today, I shoved 102 bytes of data into my ESQ-1 and, for all intents and purposes, recovered my clavinet for free.

The Hack:

This is a very nice clav imitation, with the modulation wheel adding a touch of tremelo. Rich used the KBD2 function as a modulator on the DCAs. This causes the PULSE wave of OSC3 (and OSC2's BASS wave as well) to be dominant on the bottom octaves since their mod amounts are negative, while the OCTAVE wave of OSC1 takes over on the upper range. You can make the sound slightly fatter (though slightly less authentic) by setting the FINE tuning of OSC2 to 4. Turning on the AM (on the MODES page) gives another variation on this theme. And for a cool "SPACE CLAV" sound, go to the FILTER page and turn FREQ to 0, RES (Q) to 31, and switch MOD1 to ENV4.

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Chris Barth, Transonic Hacker Review

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ESQ-1 PROG: HIT

BY: TIM EDWARDS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	SAW	LFO1	2	OFF	-
OSC 2	-1	0	5	SAW	LFO2	2	OFF	-
OSC 3	2	0	3	SAW	ENV2	63	LFO3	4

see htext39

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV3	63	OFF	-
DCA 2	0	ON	ENV3	63	OFF	-
DCA 3	0	ON	OFF	-	ENV1	63

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	52	5	23	OFF	-	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	ON	TRI	0	1	20	WHEEL
LFO 2	22	OFF	ON	TRI	0	21	20	WHEEL
LFO 3	50	OFF	OFF	SAW	63	37	0	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	63	23	0	0	0	47	63	63	0
ENV 2	-24	-20	0	0	0	0	5	14	0	0
ENV 3	0	63	63	0	20	20	0	42	63	0
ENV 4	0	63	63	0	0	0	3	26	32	0

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

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	ON	HIT-1	OFF	-	-

ESQ-1 PROG: HIT-1

BY: TIM EDWARDS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	0	NOISE1	ENV1	20	OFF	-
OSC 2	-2	0	2	NOISE1	ENV1	20	LFO1	15
OSC 3	1	0	0	PRIME	OFF	-	LFO1	15

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV3	63	OFF	-
DCA 2	0	ON	ENV3	63	OFF	-
DCA 3	48	ON	OFF	-	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	94	0	0	ENV2	42	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	7	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	38	OFF	OFF	NOI	0	0	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-22	-22	-22	0	0	0	63	63	63	0
ENV 2	0	-41	-63	0	0	0	33	38	63	0
ENV 3	0	63	63	0	20	17	0	26	39	0
ENV 4	0	63	63	8	0	0	9	25	33	0

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

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

ESQ-1 PROG: DRIPPY

BY: STEVE MUNRO

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	4	SQR2	LFO2	3	LFO1	5
OSC 2	-1	0	0	SQR2	ENV1	-25	LFO1	3
OSC 3	-1	0	1	BASS	ENV1	10	LFO1	2

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

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	44	0	45	ENV3	48	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO3	63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	ON	TRI	0	0	0	WHEEL
LFO 2	19	OFF	ON	TRI	0	63	25	OFF
LFO 3	1	OFF	OFF	TRI	63	63	63	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	63	0	0	0	0	7	17	0	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	63	58	43	46	0	0	30	26	38	0
ENV 4	63	63	63	36	0	0	63	63	25	13

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	10	OFF	ON	ON	OFF

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

ESQ-1 PROG: CLAVD6

BY: RICH TROMMER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	1	OCTAVE	LFO1	3	OFF	-
OSC 2	-1	0	0	BASS	LFO1	5	OFF	-
OSC 3	-1	0	0	PULSE	LFO1	1	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	51	ON	KBD2	6	OFF	-
DCA 2	58	ON	KBD2	-3	LFO2	5
DCA 3	34	ON	KBD2	-49	VEL2	16

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	36	3	26	ENV3	59	KBD2	8

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	ENV1	6

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	4	OFF	ON	TRI	3	28	0	OFF
LFO 2	24	OFF	ON	TRI	0	22	29	WHEEL
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	25	63	0	26	19	0	0	7	20	9
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	50	30	2	39	52	11	4	48	37	12
ENV 4	63	50	0	36	11	0	39	52	6	11

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

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

Classifieds

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PATCH UPGRADES

VOICE CRYSTAL UPGRADE #9-A1-7.5

MODEL: VC1

PATCH: PNOST2

LOCATION: BANK A1

ENV 2: LV=16, TK=00

ENV 4: LV=18, T4=30

FILT: KEYBD=20

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The Interface

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U.S. Mail - The Interface, Transoniq Hacker, 1402 SW Upland Dr., Portland, OR 97221

Electronic mail - GENie Network: TRANSONIQ, CompuServe: 73260,3353, or PAN: TRANSONIQ.

This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt.

Dear TH,

I am planning on buying a computer for my ESQ-1 to write and make sequences. Could you please give me some advice on which computer and software I should buy. Keep up the great work.

Thanks,
Bob Rice
Berea, OH

[TH - This question is really so wide open that a real answer would take pages and require a lot of interaction to nail down what you really want. A couple general tips though - since you're not already tied down to a particular computer you're in the enviable (and unusual) position of being able to do it the right way and select the software that does the job first - then select the computer that will run it. Best thing to do is watch the reviews (ours and others). Most of the popular programs will run on the C-64, the IBM-PC, the Mac, and/or the Atari ST. The C-64, the Mac, and the IBM-PC have been around for a while, have a wide user base, and a lot of software. The ST is up-and-coming, has built-in MIDI, and is gaining a wide user base in Europe and among musicians. Many music stores are now in the position to offer help and demos when selecting software.]

Dear Hacker:

Right this moment, I'm reading the June "Interface", and there's still ANOTHER letter from someone who wants the SQ-80 waveforms for their ESQ-1 or M. Frankly, I'm getting a little sick and tired of this stupid controversy.

As Ensoniq and I have stated (the Interface, April), any modification of this nature is going to be extremely difficult to pull off. Somebody would have to put in a massive amount of work to make the various hardware and software changes first, on the prototype, just to get one working. And the people who buy the mod are going to pay for this development time. And they're going to have to pay some tech, say \$40 an hour to take their instrument apart, cut traces, wire in jumpers, a new board, etc. etc. And folks, you'll have your SQ-80 waveforms! And you'll probably be four or five hundred bucks poorer for the privilege! You see, it's a sad fact of life that it always costs a hell of a lot more to reverse engineer something into an existing product than it does to

design it into a new gadget.

The thing that bothers me the most about this whole deal is that Ensoniq busts their collective behinds to make a great product like the SQ-80 at a reasonable cost. Suddenly, there are some yahoos with their ESQ-1s, and what was just great is now second-class. They've fallen out of love, and they're just not going to be happy unless they have those 43 wonderful waveforms. Then, next year, when Ensoniq puts out another technowonder, they'll go through the whole mess once more.

I have a feeling that we're missing the forest for the trees. I wish I had an SQ-80 too, but it will just have to wait until the money is there. Until then, I'll keep using my ESQ-1 for shows and studio dates. And I'll sell it for less than I paid for it, and probably get less than I'd like to get! But for now, it's doing just what it was supposed to do when I bought it, and the main point is that I'm making money from this machine.

To wrap it up, let's appreciate our instruments for what they are, and let's stop this musical yuppism ("...but 32 waveforms just aren't enough!"). What would these folks do with a Prophet 5 (sawtooth, pulse, triangle)?

Best Wishes,
Charles R. Fischer
Mescal Music
Hercules, CA

Dear Hackers and Ensoniq,

I'd like to discuss a minor mechanical problem that I have been experiencing with my ESQ-1.

In February/March, I discovered an annoying "click" that sounded when I played the CMaj7 chord containing keys B3 and C4 on the ESQ (8 months old). In fact, the click was created by pressing C4 while holding B3. Fearing a serious problem, I promptly returned the keyboard to its place of purchase. The service person found that the C4 key was actually sitting unevenly since the plastic fulcrum beneath the key had somehow been chipped. The fulcrum is part of a molded plastic assembly. Hence if I wanted to be rid of the click, the entire keyboard assembly would have to be replaced.

Being the picky person that I am, I decided to wait for a keyboard replacement. The replacement was

ordered in April. (Between February and April, the ESQ developed circuit problems and as a result, the main circuit board had to be replaced -- but that's another story.) By May, I was growing impatient so I had the service person replace by keyboard with the keyboard from a store model. Unfortunately, the "new" keyboard had the same problem as the old one -- a click under C4 when B3 was held. We assumed the click to be the result of another chipped assembly.

June: My warranty has almost expired and the new keyboard assembly ordered in April is still in Ensoniq never-never land.

Not one to leave a problem unresolved, I had the keyboard replaced with one from a store rental model which I tested before installation by the service person. However, when I tested the keyboard more extensively at home, I gradually discovered that I had more clicks than I cared for. Every F on the keyboard clicked when the adjacent E was held!

Needless to say, I was a tad displeased. So, I opened the keyboard myself and removed all the F keys... the assembly was NOT chipped! After looking more closely, I found that any two white keys NOT separated by a black key (ie, E/F or B/C combinations) would "click" against each other. The actual point of contact was between the corners of the tabs projecting down from the bottom of the white keys. (The tabs cover the inside of the keyboard when it is viewed horizontally from the front.)

Conclusion: As the keyboard ages, the plastic keys become more flexible... more twistable. If pressure is not applied to the center of a key, it will twist either to the left or to the right and may make contact with an adjacent key. I thought I might file the corners of the tabs to get rid of the clicking but what's really needed is a design that will force each key to ride vertically regardless of where on the key a finger is placed.

In closing, I'm sure there are many more people out there with clicking keyboards who have chosen to ignore the problem thinking it too small to worry about. However, when I as a consumer buy a product for \$2000 (Canuck bucks), I don't expect the product to develop problems (no matter how small) quickly.

Well, that's my opinion anyway. I still think the ESQ-1 is a great machine. Let's improve it.

P.S. TH - Fantastic magazine. Keep 'em coming. Ensoniq - Where's my keyboard?? Smokers - You wouldn't believe what smoking does to the inside of a keyboard!

Regards,
Jonathan Lee
Hamilton, Canada

[Ensoniq's response - We purchase our keyboards from one of Europe's leading keyboard manufacturers. These keyboards have been used in many products (like the Emax) from a number of different manufacturers.

This is the same keyboard we have used in the Mirage for over 3 years, and quite honestly we have never heard this complaint before with over 50,000 keyboards in the field.

For any questions concerning service in Canada, contact EFKAY at (514) 331-8420.]

Dear Fellow Hackers:

Christian Super's article on page 9 on the May Hacker brought back memories of many trying moments - and reminded me of the article I've been meaning to write on ESQ sequencing and the studio. (Okay, I'm working on it now...) What the ESQ does do is allow the pre-studio recording (sequencing) of keyboard, drum, and bass parts, thus drastically cutting actual studio time - and saving literally thousands of dollars.

What the ESQ does NOT do is provide a workable sync track arrangement. I pulled my hair out for a few days, trying to get a successful sync track, and NEVER accomplished the feat. The recording gear was state-of-the-art, and every possible patching arrangement was tried (patching direct, through the mixing desk, through an EQ, etc.), and still no luck.

I first laid down a sync track (on an edge track, with nothing adjacent to it, no noise reduction, at the specified level), and the ESQ seemed to read it fine. Everything began playing when the sync track began. Fine - we recorded a set of tracks. Next, we went for some sequenced overdubs, and that's where the terror began. With everything still the same (the sequencer in sync mode, etc.), the tracking was slightly varying from what we had just recorded. Everything STARTED together, but didn't quite stay together; in other words, the sync didn't sync.

Frantic calls to Ensoniq didn't solve the problem; they only clarified that the sync feature was not something they had spent a lot of design time on...

Now, here's the crazy part. Thinking that the sync tone on tape might need a bit of boost before it got back to the ESQ, we patched it through the mixer and made it a bit stronger. Our rationale was that if the level was not high enough, some pulses might not be read, thereby resulting in the sequencer lagging slightly behind the recorded tracks. To our amazement, we found that the level of the sync signal controlled the SPEED of the sequencer! Now there's something pretty useless!

The problem was quickly solved. We rented a Roland SBX-80 SMPTE to MIDI box, and I've never touched the sync output again. SMPTE is indescribably better than sync - and I've never, ever had it misread or get off sync. (The only problem was trying to make sense of Roland's manuals. They should send a spy to Ensoniq to see how to write them.)

So, I agree with Christian - forget sync, use SMPTE. But I'd also like to suggest a slight improvement in his procedure. The SMPTE track should always be recorded first BY ITSELF; in other words, don't lay keyboard parts, etc. during that first pass. This insures that any delay in the setup will be the same for all tracks; otherwise, anything recorded on that first pass, without such delay, might be a slight bit ahead. (Probably an extremely slight bit, but why not be perfect?)

There are several other sequencing nightmares - and solutions - that I'd like to cover, but I'm saving them for the article.

On another topic, that of Ensoniq's repair policies, I'd agree with Kim Monday (his letter was in the May issue as well) in that problems are mostly with the dealers, rather than the factory. My ESQ needed work once, in the midst of a solid string of gigs across the state. My dealer, Sound City in Baton Rouge, Louisiana (and still my dealer after I moved to California), loaned me a replacement, air freighted my board to Ensoniq, and called the repair department to explain my situation. The next day, Ensoniq received my board, repaired it, and air freighted it the next day to my next gig. It was there before I was. Now that's service.

Regarding Douglas Medeiros' request for an authentic Fender Rhodes patch, there was an excellent one by Todd Vogeley called FENDER published in February '87 Hacker. For a DX-7 Rhodes sound, I'll be happy to send Douglas a listing of my DX PNO patch from Syntaur's Soundset 1, if he sends me a stamped addressed envelope.

Sincerely yours,
Sam S. Mims



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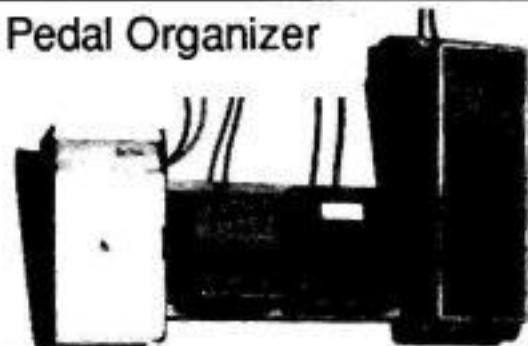
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[Ensoniq's response - There were a number of problems with tape sync prior to OS version 2.3 which caused problems with starting and staying in sync. OS version 2.3 and higher implemented a software filter which greatly increased tape sync reliability. Many people have used tape sync successfully since then.]

The effect of tempo change with level indicates you were boosting the signal level to the point of extreme distortion, causing multiple trigger edges. Ultimately, it shouldn't be surprising that a relatively expensive stand-alone synchronizer designed specifically for such use outperforms the built-in tape sync on the ESQ-1.]

Dear Hacker:

Rather than inexorably flattering the Hacker for its invaluable support for Ensoniq, I'd like to thank Eric Geislinger and Jane Talisman who (if you haven't read the back of the magazine) are the driving forces behind this whole thing. We out there in Hackerland are indebted to you for your efforts and your over-the-top dedication and vision.

Anyway, I am writing with some comments on my new EPS. First off, it's my hope that Ensoniq adds or modifies the MIDI implementation, specifically, reaction to program changes. As it is now, program changes either select or deselect instruments, or stock them. I would like to see program changes to load files off disk (like the Mirage) or have different codes for selection or deselection (they share now).

Secondly, I wonder if Ensoniq can put slots for more than one song in internal memory. I know loading from disk makes it sort of unnecessary, but it doesn't seem that difficult (software or memorywise).

Thirdly, about the manual. Ensoniq manuals are truly great. They explain things easily and concisely without insulting your intelligence (look at Roland's or Korg's for that), and have tremendous support to back them up, BUT... Ensoniq's groove seems to be putting out a basic manual, skimming over everything; and then putting out an in-depth manual that satisfies techno-jerks like me. My problem with the EPS manual is that I feel it should be responsible for skimming over all the functions, and leaving the AAG to apply all the basic functions. For example, the EPS manual doesn't even mention the sys-ex capabilities of storage to disk. Sure, it's an advanced function, but at

least I should know how the EPS operates it. As it is, I have to wait for the AAG and burn more time - in addition to waiting for the EPS in the first place. I know I'm gonna get killed for this - oh well, at least it's off my chest.

Fourth, I would like everybody to get off Ensoniq's back about all the things they won't do for us, the American consumer (specifically, an EPS rack and an ESQ to SQ-80 conversion)? My god, people, don't you know that American companies are being eaten alive by Japan, Inc.? The fact is that our Japanese friends make less an hour and have much lower standard of living than we do. They are also a much tighter knit society than we are, thus lengthening the working life in a particular industry. The only way Ensoniq can survive is to meet specific niches in customers needs, NOT manufacture across the entire spectrum! We need to realize (as Ensoniq has proven they do) that start-up and R & D costs take the majority of time and money (and carry a great deal of risk) and that by getting straight A's in the essential things, sacrificing some of the intermediate things, and heavily relying on third-party manufacturers, Ensoniq can pay and profit its costly labor force. This is the new era, people! If I hear another rack-demand for the EPS, I think I'll throw up.

In balance, though, write your wishes in! If enough cries are heard, that lessens the risk on Ensoniq's part and increases their confidence in current and future products. Let's make them wish-lists instead of demand-lists, though.

Fifth, bravo to Al Goldberg of Still Voice Audio for his letter in the Interface. I just can't agree more. Man is both heart and mind and music must relate to both. Music must stir deep love and deep convictions (the heart and the mind). I guess we should always apply everything we do technically to that end. I am not a narcissist; I believe there is substance in music, not ungodly mundane anything-goes nothingness.

Sixth, I appeal to Hacker-users to support the MUG user's group. Gordon Gebert (G-4 himself) puts himself in a slave-laborer's position heading it up. Do you know how much of a pain it must be to copy up all those disks yourself? I bet all that drudgery must be very discouraging. Gordon says he is willing to support and/or start-up a user group for the EPS (and everybody knows it needs more sounds). Let's support him by using his service and mentioning MUG to Ensoniq.

Finally, in closing (is he done yet?), I don't know if you've noticed a particular type of Ensoniq language the company

used. Phrases like "not available for public consumption" or "suitable for public release". I know what they mean ("We won't give it you" or "We're not gonna do it!") but it's just funny to hear it in such a formal way. Also, in the manuals, I like the way the writer tells us "Don't do that" for various things. Sounds like some kind of inside joke. Oh well. Thanks for giving me time for my concerns.

Thanks,
Garth Hjelte
Advent Productions
Seattle, WA

[TH - Thanks - but did you have to reveal our secret identities?]

[Ensoniq's response - In response to your first comment, you can load sounds from disk with program changes in MULTI-MODE.

Secondly, songs and sequences consume relatively little memory compared with sampled sounds, so they load fast. Combine this with the fact that you can go on playing the keyboard while a song loads, and we think the one-song limit is an efficient and manageable approach.

As we stated last month, it was never our intention to have just one manual available for the EPS. Quite simply, the Advanced Manual wasn't ready when we started shipping the EPS. The information that needs to be gathered takes a great deal of time.

The reference card that came with the EPS lists all of the commands, but the manual which explains them was only recently finished. It is now being shipped with the EPS and will be sent free of charge to all registered owners (so send in those warranty cards, people!). The final, advanced manual will not be available until later in the year.

There are no hidden meanings in the phrases that you mentioned. Generally speaking, "not available for public consumption" means the information exists in a form which is too complicated and confusing for the public (ie: reams of software listings, engineering drawings, etc.). "Not suitable for public release" means the material contains information that we consider proprietary and confidential; some of which we feel is not in the best interest of the company to release.

We don't have the resources to edit this material and we don't have the resources to deal with the inevitable questions and confusion the material would produce in its present form.

We sincerely want to thank you for your fourth comment and also do welcome

any and all suggestions. By the way, some of our best friends do like ungodly mundane anything-goes nothingness.))

Dear Interface,

I am considering the purchase of the EPS. That purchase is tied to hard disk storage of samples, and software editing with Alchemy(TM) on a Macintosh SE.

There is a question of hard disk brand name compatibility with the EPS (with SCSI) and formatting of that disk. For example, my probable choice of a hard disk is the Relax SyQuest 45 megabyte removable. (The advantage here is unlimited storage. It's supposed to be on the market by the end of July.) Do I need to predetermine if this manufacture's hard disk is compatible with the EPS?

Then, assuming the hard disk is compatible, there is a question of formatting and chaining (up to 7) hard disks. I currently have an internal 20 Meg and an external Relax 91+. With a SCSI port it strikes me that the EPS must also have a SCSI address; however I assume that I cannot load a sample via SCSI directly out of the EPS onto the Mac - that is, the transfer of sample data must be made via MIDI with Alchemy in order to achieve a Mac interface. Or can I? Does the Mac recognize the EPS SCSI address? Can it access that address? It is a question of handshakes and formatting?

If the EPS formats its own hard drive, then you have two discrete dedicated hard drive systems that don't talk to one another. Still I could do an EPS formatted 45 Meg disk for EPS access, and format another for the Mac for its applications. It's a double-duty concept. What are the limits here for digital compatibility in a chained hardware setup?

Thank you for your informative magazine.

Sincerely yours,
Roderick S. Parrett
Vancouver, B.C.,
Canada

[Ensoniq's response - SCSI hard disks do differ between manufacturers in their hardware and software implementation. We are evaluating numerous hard disks and will maintain a list of devices known to work with the EPS. Any Macintosh compatible drive should work, but unless it has been evaluated by ENSONIQ, we cannot guarantee compatibility. We will certainly keep the Hacker updated on our findings, but obviously we cannot evaluate every drive on the market.

The firmware which will accompany the SCSI upgrade will allow you to set the EPS's SCSI address.

The Macintosh can transfer wavedata to and from the EPS over SCSI at very high speed using Blank Software's ALCHEMY program (which was demonstrated at Summer NAMM) and soon using the SOUND DESIGNER program.

The EPS and the Mac formats are incompatible, but you can have one drive formatted for the Mac and one for the EPS. It should even be possible to use a removable cartridge drive with different cartridges formatted differently. Of course you could not use such a drive with both the Mac and the EPS at once.]

To the Interface,

Regarding William Jordan's complaint in the June issue against Music Direct, Inc., let me quickly come to their defense. I had trouble with their C-64 patch librarian software and could get no reply at first. After writing to you, Music Direct replaced the software and sent a letter explaining the delay - a copy of which I rushed to you but not in time to prevent publication of my complaint.

The system works fine, has terrific graphics, is money well spent, and as I originally stated is a work of genius. I heard from another very pleased Music Direct customer in Florida.

Software marketers are not always the authors of their products. It is often difficult to get them to honor commitments. My hope is that Mr. Jordan's complaint against Music Direct is resolved to his satisfaction.

Best wishes,
Bert Evans
Jacksonville, FL

Dear Hacker

Regarding ESQ-1 battery replacement...After 6 years or so, according to the Ensoniq manual, batteries need replacing by Authorized Repair.

Can the Transoniq Hacker please inform ESQ-1 owners how to change batteries? Please cover the simple EASY basics, from what type batteries, to how to open the cover lid of the ESQ-1.

Sincerely,
G. Jaeger
Washington, MO

[Ensoniq's response - Although most units requiring replacement batteries will be well out of warranty, we can't support this idea. There are no user-serviceable components in the ESQ-1. The lithium battery is not readily available and must be soldered directly to the main board. It would be quite easy for an inexperienced technician to damage the ESQ-1 or the

battery. We must recommend that the battery be replaced by an Authorized ENSONIQ Service Facility.]

[TH - Of course, if someone wants to write an article for the more adventurous...]

Dear Hacks:

Your new format looks sharp...really. Until we see ads featuring Ted ("MIDI is for wimps") Nugent, enhancements are welcome.

If no one has written and complained about the whining the ESQ makes when powering up or down on a hot line, I'm surprised. This is an annoying feature on an otherwise great machine. Has it been corrected in newer hardware or software versions? What is the cause? Have you ever seen an entire room full of people jump? Also, my machine has developed an annoying crackling (like a short, which I assume to be because of humidity), and if you play an 8 note scale, the 8th note doesn't play through the right channel (I have software v3.5). Has anyone else had these problems?

An item of interest: Several disks of P. D. ESQ/Mirage/C-64 software (patches, utilities, etc.) are available from

Commodore Music Software Exchange
P O Box 533334, Orlando, FL 32853,
who'll also send a free catalog. No, I
don't work for them.

Hack longa, vita brevis,
Wayne Dooley
Titusville, FL

[Ensoniq's response - Due to the cost of the components involved, there is no output muting in any of our products. It is always a good practice to turn down your mixer or amp when powering any equipment on or off, just as you would do when plugging or unplugging cables.

The "8th note" problem and crackling could be the result of a bad voice chip. Contact ENSONIQ Customer Service for assistance.]

Dear TH:

I recently bought an EPS (something short of selling my soul) and am relieved at the ease with which one can achieve high quality samples in such a short period of time. I've been experimenting with sampling other keyboards (DX-7, D-50, and stacking) and have noticed no loss in quality. However, (uh-oh!) I've discovered an annoying click in the right channel whenever the key is depressed

(or TWO clicks if the key-up is activated). This is not unique to just my EPS though, because I've noticed it in two other EPS's at the dealer. I've talked to the salesman, and have called several technicians and nobody knows what I'm talking about.

I'm wondering if the 13-bit D/A converter is the problem. Why did Ensoniq put a 13-bit D/A in a 16-bit machine anyway?

Now, for my wish list for the EPS:

- A custom rackmount hard disk.
- An 8X expander.
- Direct to disk sequencer (software that will allow the sequencer to read from disk for an 800k sequencer).
- Software like that for the Mirage, that will allow the use of waveforms and oscillators for sound generation (ie, half EPS, half SQ-80).
- (And I'm on my knees for this one) possibly a modification to allow stereo sampling?!?

I've had an ESQ and a Mirage in my arsenal in the past and I am delighted with the EPS.

I would just like to thank the folks at Ensoniq for considering the needs and

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desires of musicians, and people who like to experiment with music, by developing these pieces of equipment to work with. I can't imagine what life would be like without them. (I probably would have a bigger bank account though!!)

Anyway, thanks to a great American company. We'll be out here supporting you for as long as you support us.

John Rule
Berwyn, IL

[Ensoniq's response - Software version 1.5 eliminates these clicks caused by re-assigning panner channels (see your dealer for the latest OS or contact ENSONIQ Customer Service).

The actual output of the EPS is a 13-bit waveform D/A multiplied by a 12-bit amplitude D/A. This 25-bit floating point output has a greater dynamic range and is more efficient memory-wise than 16-bit linear encoding.

And the wish list:

- Other companies are working on the rackmount hard disk.
- The price of RAMs at this point would make an 8X infeasible.
- This type of sequencer would cause excessive disk drive wear.
- Many of the computer software packages (Softsynth, etc.) will allow this.
- You can already make stereo samples on the EPS by sampling the left and right channels separately then panning the two samples fully left and right. In addition, ALCHEMY will take mono samples and convert them to stereo or automatically convert stereo samples from other samplers to EPS format.

There is virtually no reason to add additional sampling hardware (input jack, preamp, input filter, sample/hold, A/D converter, etc.) when the identical results can be achieved without any additional hardware.]

Dear Transoniq Hacker,

First, I'd like to praise the Hacker on several counts - for being an open forum to a broad range of viewpoints, for being flexible to change and improving with time, and for providing valuable and interesting information to Ensoniq product owners. Now, a few comments.

I think Michael Carnes' article on synth programming standards you ran a few months ago has some merit. All too often programs include residual parameters left over from some previous program which have no purpose or value. For example, in the June issue there is a good patch in Hackerpatch called "London Strings". Parameters are

included for envelopes 1 and 2 and LFO3 - yet none of these is actually used in the sound produced. This is not your fault; you print the patch as it is submitted. Rather, I see this as sloppiness on the part of the programmer. I find this annoying.

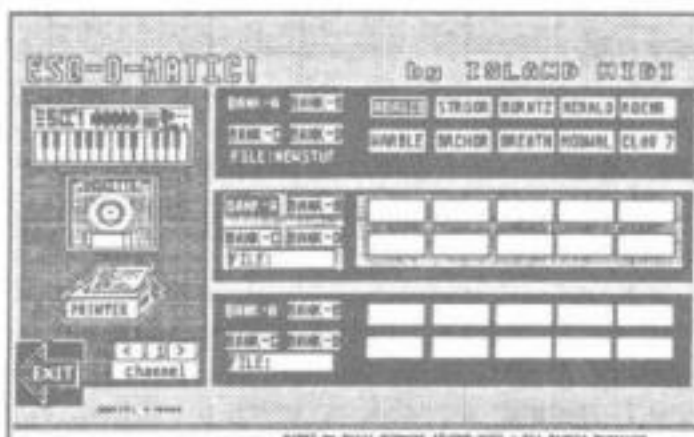
Another complaint I have is the wimpy patch reviews. It seems most of your reviewers want to hedge their bets so as not to offend or alienate buyers and sellers. This serves no one, especially people like myself who are on a severely limited budget. I compose music at home as a hobby. I don't have the money for a drum machine, another synthesizer or Mirage, etc., or extensive outboard effects. I use my ESQ-1 solely, and a tape deck to record my efforts. (Here's an aside to all the people who'd like to remove the sequencer from the ESQ's, or modify them radically: you are not in the majority and should simply look into different synthesizers that will perform the tasks you would like. The ESQ-1 was designed for people like myself who desired a synth that would perform a variety of functions at an affordable price. That is why it has become so popular. To change that formula is to change the very idea that was the basis for the synthesizer.) In any event, I've spent hundreds of dollars on voice cartridges and have been sorely disappointed. The reviews for these products were, in most cases, generally favorable. Also, the consensus seems to be that all patch collections contain "throw-aways" and that if you get a few that are worthwhile you should be satisfied. I disagree and find this attitude unacceptable. We've all heard the arguments about how people's tastes and needs differ, and the context in which the patch is used, but come on! In the year I've been subscribing to the Hacker I've only seen two unfavorable reviews (I did miss a couple of issues when I moved). In my opinion, reviewers should take a harder line. Or how about a reader survey?

To any of you who have recently acquired an ESQ-1: beware the patch vendors! I was impressed by Cesium Sound's ads, and when I wanted to expand my orchestra section bought two carts with acoustic sounds. I can't speak for his other sounds, but these sounded nothing like real horns or strings, and the basses and drums were worthless. It's a good thing I bought these on RAM carts; at least I can save other good patches here. I purchased two of the Voice Crystals and was also disappointed - only a few good patches in the lot; the rest pretty mediocre. I was impressed with the Technosis cart I bought: lots of new and different stuff, excellent drum patches, and thorough notes included with tips on programming. It also has a VERY good harpsichord patch, for the reader who was looking for one. Also

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recommended for value is the Maartists 160 Voice RAM and Leister Productions ESQ-1 data tape. The Q-Spectrum cart is food for someone who doesn't want to program; you can plug this in and play, but most of the sounds are keyboards. Don't expect horns, strings, drums, etc. Anyway, now that I've offered my own reviews, I'd appreciate other readers' opinions on other products. Thanks to the reader who wrote in warning of Valhala products - this saved me some money.

Out of interest (and necessity) I've learned a lot about programming, mostly by picking apart patches (how did he DO that?) and reading the tips in the Hacker. So with this letter I also include my own humble offering, a lead patch I wrote.

Again, patch reviews aside, I think the Hacker is doing a good job providing information to a wide spectrum of subscribers, and I hope to see it get even bigger and better than it already is.

Sincerely,
Steve Munro
Denver, CO

[TH - Actually, the bogus settings in the "LONDON STRINGS" patch were our fault. We take it upon ourselves to clean up this kind of thing (by having Sam Mims do the dirty work). Sam took care of the items that you pointed out and then we diligently typed in the original version.

Regarding the reviews: Rather than repeat the thing about "opinions and context" (although still true and VERY appropriate...), we'd like to point out a few things that actually DO introduce a certain amount of "bias" in the reviews: First, with few exceptions, we don't go out hunting these things. Most come to us. Secondly, when we get them we ask ourselves, "Who'd be most interested in this type of material (which reviewer)?" Third, we ask the reviewer to keep in mind a similar question, "Who's the person that's going to find this useful (if anyone)?" Other than this "optimistic starting point," if it's junk, then they call it junk.

Your comment about the throw-aways reminds us about a repeated line that struck us as really odd the first 16 times we heard it: "The other vendors always have a certain amount of throw-aways in their patch collections. OURS are all wonderful."]]

Dear Hacker,

Here's a dilemma for you. I had just received my 3.5 update for my ESQ-1 and all seemed well. That was until I had an accident and lost some patches hours before a gig. I thought nothing of it at

the time and just pulled out my trusty SX-64 and my Valhala ES1 librarian that I keep all my patches and sequences on. Well, to my disillusionment my librarian no longer would talk to my updated ESQ-1. Upon calling Valhala I was informed that it was Ensoniq's problem for not letting their third party developers know when they were going to make a change.

It was immediately apparent to me that it wasn't Ensoniq's problem because they weren't sitting here with a librarian that didn't work, I was. Valhala was of little help so I called Ensoniq. They promised to contact Valhala and provide the necessary information to update the software.

Well, it's been almost a month since then and I just got off the phone with Valhala who is still complaining (I thought that was the customer's job) about Ensoniq and claiming that they are not responsible for keeping the program current. I also just left another letter for Ensoniq on PAN asking them to please make the necessary info available to Valhala.

So who is responsible in this situation? I'm tired of being a go-between for these two reputable companies. It seems in update situations: 1. The manufacturer should make all or major third party developers aware of anything that might affect their products and 2. Software manufacturers have a responsibility to make sure that their products continue to work with the machine that they were designed for.

Special thanks to Strait Music in Austin, TX for standing by me and making sure that I could keep my ESQ-1 up and running throughout this entire mess.

Jamie Hilboldt
Austin, TX

[Ensoniq's response - Third party developers are a very important to ENSONIQ, and we value their existence and are always open to communication. Valhala has already received the 3.5 OS, and at this point we have no further information on the subject.

The change in 3.5 didn't involve the normal MIDI functions as librarian programs from other developers continue to work. This is a classic compatibility issue which will crop up from time to time whenever you're dealing with computers.

We can't be held responsible for improvements to our products that interfere with improperly implemented Third Party software.]

[TH - We've since heard from Valhala that they've received the update and are

fixing up their software. You should re-contact them if they haven't gotten back to you. And yes, this is a CLASSIC industry-wide problem.]

Dear Transoniq Hacker,

I am a very proud owner of an ESQ. I use it with a TX-81Z and a Drumtrax drum machine. Some guys at the music store I usually hang around told me I should write you guys a letter and tell you what I have doing to save my sequencer information. I thought that I was probably the last person to catch on to this but they didn't seem to think that so...

I don't have a computer or a data filer to save my sequencer or program data. I have tried to save the data via tape, but failed there also. It was not the fault of the ESQ-1. My reel-to-reel has seen better days. After trying everything I thought, why not try the VCR. So I plugged the ESQ tapeout into the audio in of my VCR, chose a nice channel to watch and began the saving procedure. It worked. I found out later that the reason it worked was because most VCRs have an automatic volume recording level.

After finding out that it worked, I polished my technique. I recorded my sequences while recording a show on the video. After the sequencer data was recorded, I paused the VCR and changed the channel to a "non channel", that is one that all you see is snow. Then I let the VCR record about ten seconds of the snow. Next I paused the VCR and put it back on a regular channel and recorded the programs that went with the sequences. Leaving snow between each data dump helps to find the sequences. The longest data dump to date is four and a half minutes for the sequences and 37 seconds for the programs.

I have plans for the ultimate "user friendly" VCR. My wife is going to loan me her video camera to plug into the video input so I can take pictures of cards identifying the sequences by name.

I hope that maybe this is helpful for those who don't have a way to save data but do have a VCR.

For music,
James Carr
Birmingham, AL

[Ensoniq's response - Great idea! Many VCR's have superior audio recording capabilities compared to audio tape.]

Transoniq Hacker:

I was able to attend the Ensoniq

Performance Tour '88 at the Russo Music store in Trenton, NJ. I must say that Ensoniq has two new winners with the SQ-80 and the EPS. Let me also mention that their Public Relations department is outstanding in my book.

Now, on to the main point of this letter. I would like to elaborate on my prior letter to the Hacker (Issue 35) regarding how I can put seven sounds across the keyboard on Banks 1, 2, and 3 with the Mirage and DSK units. I asked how I could take this same configuration from those keyboards and use it on the EPS. Thanks to the help of Doug "I don't have much time" Nestler, here's the solution.

Boot up your Mirage or DSK disks on the EPS and then perform the following:

1. COMMAND system
2. Mirage/DSK sound
3. ENTER
4. choose bank 1
5. Upper and lower
6. Scroll right to Program 1.
7. Save to EPS disk
8. Repeat these steps except for #6 in which the program will change from 1 to 2 to 3, etc.

One further thing I need to mention. The Mirage and DSK boot up with P21 at a value of 50. It should be adjusted to 48 and saved to a disk that you would use to boot up with. SAVE by pressing P14 - ENTER. (Value 48 is A440.)

"Mr Wavesample"
Keyport, NJ

[Ensoniq's response - A value of 50 is A440. Make sure the pitch wheel is properly adjusted.]

Dear TH,

I'm getting tired of reading letters asking if Ensoniq is going to update the 32 onboard waveforms in the ESQ. If someone has to ask this question, they shouldn't be attempting to program the beast. Now, let me check my list of loose ends.

1. OK! I've gone to see several hard gigging musician-type friends play out recently. These folks all have Mirages in their setups. After hearing them really work out, I still come to the same conclusion -- open up those filters, ladies and gentlemen. Let's not be afraid of the dreaded Aliasing creature within. People in the audience, for the most part, wouldn't know an aliasing tone if it came at 'em with a knife. Muffled, muffled, muffled -- and I've always thought that about my Mirage during live performance. As a result, I've gone through my library of sounds and

raised the value for P36 filter and/or P41. The use of an aural exciter has helped an awful lot. And, of course, some digital reverb puts the frosting on the cake.

2. Come on! Dust off those 4-track cassette recorders. (If they don't have a variable pitch control leave 'em where they are.) I've been building some nice D-50 type sounds on my Tascam 246. Each component of the stack gets its own track. Now, you can EQ each differently, you can put effects on all or any single component. If you want, you can mix different volume levels or you can ride the volume sliders and do what I call an analog-Xfade. And, if you sample with the last page looped, check for tuning relative to the interval tuning of the Mirage. When you get it in tune there's always many more zero-crossing points to choose from. That variable tuning knob can get to be your best friend.

3. Even with the advent of the EPS here in the real world, I couldn't bear to part with my Mirage. First, it wouldn't pay to trade it in, and second, it's a damn good machine. Even when I get an EPS I'm sure to always have room for the Mirage. My thanks to the people at Ensoniq for their perseverance, and thanks to your publication for continuing where the manual left off. And thanks to those 3rd party developers for making this a very exciting time in the history of music. Keep on dreaming.

4. Where are all of these fantastic sounds from people using SoftSynth? Is anyone out there selling these things? I don't have the luxury of owning a Mac. What can this program really do?

Gratefully,
Eric Marczak
Scotia, NY

[TH - Now let's hope that we don't start getting a spate of letters regarding our previous spate of letters. The problems of an open forum...]

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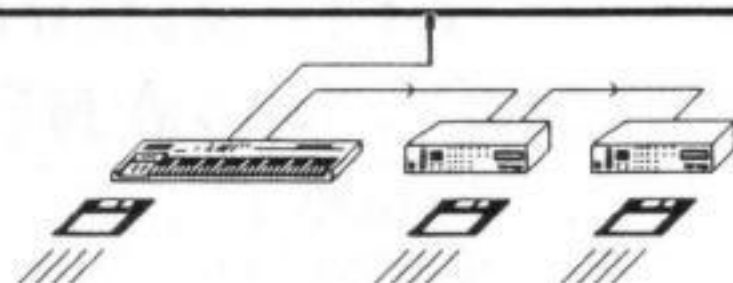
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