

# SETHO JOURNAL

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## READER'S MAIL BOX

To: Dale Chidester, Salem, OH

Dear Dale,

I believe that I've finally succeeded in using your disc containing a majority of your Magnolia Micro Systems' (MMS) CP/M modules to create for you a system module without ICON. This should allow you to switch output to the screen to go to the printer, and vice versa if you wish, by setting the IOBYTE appropriately as I described in my article in the SEBHC JOURNAL for July, 1988, entitled "IOBYTE and MMS's CP/M".

### YOUR ANSWER

You'd sent me a soft-sectored 96tpi diskette which threw me for a loop for many months as I didn't own a soft-sectored controller nor a 96tpi drive. I now have both. Actually, I had to return the 96tpi drive as it wouldn't even format a disc, and most of the files on the disc you'd sent me couldn't be read by the drive. But I was able to copy off enough files to create a system module without ICON. My process is as follows:

- 1) I copied BASECPM.COM, B5316.HEX, M316.HEX, LINK.COM, SETUP.COM and SYSGEN.COM from your 96tpi disc to a newly formatted 48tpi disc.
- 2) I PIPed a copy of BASECPM.COM to MOVCPMMS.COM and keyed LINK B5316 MOVCPMMS and LINK M316 MOVCPMMS.
- 3) I ran SETUP to view the final results and everything looked good.

When I ran MOVCPMMS which would normally be followed by a SYSGEN @ A: to complete install of the newly-created system module I received a SYNCHRONIZATION ERROR message, the operating systems' cryptic way of saying that the currently-running operating system isn't in sync with the operating system being generated. In this case, my operating system serial number doesn't match your serial number.

You have to be able to boot the operating system that you are trying to reconfigure. In my case I couldn't tell whether it was the 96tpi disc or my 96tpi drive that was giving me problems, but the net result was that I couldn't boot your disc and therefore couldn't test the results of the MOVCPMMS system module.

Manufacturers do this in order to protect their investment. Their thinking is that, if you don't already have a bootable disc, then you can't make another one. After all, the original distribution disc was bootable.

I also created MOVCPM37. In case you are using the Z37 controller rather than the MMS controller, this should work for you. It includes the B237.HEX and Z37.HEX modules. Had to use my copies of these latter two modules since I couldn't find yours on the disc that you sent me. I highly recommend that you recreate this on your own system: 1) PIP MOVCPM37.COM=BASECPM.COM, 2) LINK Z37 MOVCPM37, and 3) LINK B237 MOVCPM37.

### THEORY OF OPERATION

(Information in the next few paragraphs was taken from the MMS Utilities manual, pg. 2.19.)

Creating the operating system module in MMS is funda-

mentally different from Heath/Zenith's approach. In Heath/Zenith you go through the "MAKEBIOS" approach which requires editing the BIOS assembler code, assembling the result twice with different ORG statements, and then running PREL to create a relocatable BIOS module that will be loaded at BOOT-up.

In MMS, the base system is kept in BASECPM.COM. Rather than use the MAKEBIOS approach, additional HEX modules are provided to be LINKed into the base system. These HEX modules include:

M316.HEX	MMS 77316 Double Density Controller Module
B8316.HEX	8" boot for MMS Controller
B5316.HEX	5.25" boot for MMS Controller
Z17.HEX	Module for HEATH hard-sectored floppies
B217.HEX	Boot for HEATH hard-sectored floppies
Z37.HEX	Zenith Z89-37 Double Density Controller module
B237.HEX	Boot for Z89-37 Controller
ICON.HEX	Interrupt Driven Console module
MxxxFxxx.HEX	SASI module (created by DEFSASI process)
B320.HEX	SASI boot

Using LINK on selective modules, a customized system is quickly achieved. The entire process is outlined below:

REN OLDMOV.COM=MOVCPM.COM	archive old system module
PIP MOVCPM.COM=BASECPM.COM	get a fresh copy of CP/M
LINK diskmodule MOVCPM	link in the disc I/O module(s)
LINK another module MOVCPM	
LINK diskbootmodule MOVCPM	link in disc BOOT module
SETUP MOVCPM	set logical/physical table so that boot drive's logical device A:
MOVCPM	run new MOVCPM program
SYSGEN	put new system on disc
SHIFT/RESET	cold boot the new system
BOOT	

The old system module may have another name other than MOVCPM and the new one can be called something other than MOVCPM. I keep many different system modules on my system, but I generally always start the name by MOVCPM, that is, MOVCPMSI.

### CLOSING

Magnolia's Brad Gjerding was correct in his (condensed) letter printed in the SEBHC JOURNAL, July, '88, pg. 9. MMS CP/M "distribution software does indeed have the I/O byte implemented." I trust that my above comments will aid you in developing your own system modules customised as you desire.

## MORE READER'S MAIL BOX

The disc on which I am sending the new system modules (MOVCPMMS and MOVCPM37) is formatted to 48tpi, soft-sectored, double density, MMS, single sided. It can be read on a 48 or 96 tpi drive on a soft-sectored controller. Proceed as follows:

- 1) Boot in A: a bootable disc containing only MODE, PIP, and SYSGEN.
- 2) Enter MODE B:SS,DD,MMS if you're using a 48tpi drive or MODE B:SS,HT,DD,MMS, if using a 96tpi drive. This will momentarily set the drive to be able to read the disc in the event that I can't already do so.
- 3) Enter PIP A:=B:MOVCPM\*.COM (this copies the two system modules to disc B:).
- 4) Enter MOVCPMMS if you're using an MMS controller, or MOVCPM37 if using the 289-37 controller.
- 5) SYSGEN @ A:
- 6) Re-BOOT.

If everything appears to be working then we have a winner. Additional SETUP options may be needed to complete the process of building your customized system module. Consult the MMS Utilities book for additional information. If you can't work through the above six steps, please give me a call at 201-692-0768 and I will gladly walk you through it.

Good luck. And happy computing.

MARK A BUCKINGHAM, 981 Belle Ave, Teaneck, NJ 07666-2614

[Thanks for sending us this informative copy of your letter 2 reader Dale Chidester! We don't use Mangnolia's version of CP/M here but we occasionally have to use EMULATE to read stuff sent us in MMS format. Having someone explain the odd-ball differences between Heath's and Magnolia's operation is a real help! Here's a copy of a recent letter from Dale Chidester to Mark:]

Dear Mark,

Thanks for the rescue, for I still don't have a 40-track, soft-sector drive. I was able to copy your disc and followed your instructions carefully. It booted to the extent that the first line signon, "64k 289/290 CP/M v2.24 Magnolia...-etc" came on with the cursor stopped and blinking at the end of the line. It refused to go down a line and display the "AD>" prompt.

I subsequently PIPed SETUP.COM to the disc and DIR indicated the file properly copied. But when I entered the command SETUP it resulted in a "no file" response.

My next move was to PIP "BASECPM.COM" from an [older] disc onto a freshly formatted disc, together with all necessary \*.HEX and \*.COM files (but assiduously avoiding ICON.HEX). I had previously been down this road and this time was similar: after SYSGEN, the "no CCP on disc" message appeared! From earlier experience I knew it would be futile to try booting from this new disc.

Rather than following MMS UTILITIES directions (p2.19), I followed the directions in your letter. Using a system disc

SYSGENed with the original MOVCPM, I copied the files from the disc you'd sent onto a disc in drive B:, which I SYSGENed from the [MOVCPM] disc in drive A:. Next I removed all discs and hard reset the computer then successfully booted in drive A: the MOVCPMMS.COM system disc (I'd made in drive B:).

Incidentally, on page 2.19 of MMS UTILITIES, the last sentence in the first paragraph under BASECPM.COM is: "It also contains the enhanced BDOS and CCP mentioned above."

Now that I have a copy of the files you sent me I'm returning your disc, along with a copy of my new system without ICON.HEX. The IOBYTE.BAS file which I've included is a short routine proving that IOBYTE can now be accessed from MBASIC programmes. Let's hope you get a good 90-track drive so that you can read my disc and see what a great help you've been. This is my second problem which you have solved (see SEBHC JOURNAL III:12--Aug 88, p10)! I hope many others in "SEBHC-JOURNAL-Land" have also been helped.

DALE CHIDESTER, 1337 E 11th Street, Salem, OH 44460

[What more can I add?! -- ed]

Dear Mr Geisler,

The interest expressed by Tom Rittenhouse as to how to maintain and further enhance our 8-bit systems' hardware is well put. Given the shrinking market, original and add-on hardware components are becoming scarce or unavailable. And, when they can be found, their price is [usually] out of line with similar products targeted for the AT/XT systems. [But] I don't think the cost of hardware components is due to overpricing, rather it is a direct consequence of limited demand.

I think the gist of Tom's proposal is to preserve the conceptual design effort that went into the various devices. It is possible that availability of schematics and circuit board layouts could incite some small-scale production of printed-circuit boards by third parties. In any event, it would allow the hobbyist to reproduce what he needs, and perhaps even integrate several different devices [on one circuit board] without having to re-design the wheel.

The potential benefit we could withdraw from such a data-bank is certainly worth the concerted effort [of all H/Z 8-bit machine afficianados]. [We must] persuade manufacturers to release designs and templates which they consider obsolete, rather than tossing them onto the scrap heap. Entities such as The Staunch 8/89er and the SEBHC JOURNAL may be able and willing to become custodial repositories for such files [from which they could] make copies available for reproduction cost only. Format of such documentation is not likely to be as uniform as for software, and may require varying amounts of effort and skill at interpretation [and reproduction]. This [effort] by itself may generate exchanges which could even make our [8-bit] journals [and newsletters] more interesting. [Hear, hear! -- ed]

How do we get something going along these lines? If any

## YET MORE READER'S MAIL BOX

of us has direct contact with original designers, we could make them aware of our interest and willingness to preserve and distribute [accurate facimilies] of these designer's products. [Not to mention immortalising a designer's reputation for having unusual skills! -- ed]

Someone must take the lead in organising collection and distribution of whatever may become available [as obsolete or surplus]. Not so long ago, Peter Shkabara (of ANAPRO) made a number of software packages available to the Staunch 8/89er. He also suggested formation of "demand groups" to encourage manufacturers to make additional batches of devices they ordinarily wouldn't produce on their own for fear of getting stuck with them. (Whatever leftovers from regular production runs must be paid for by someone, which sometimes explains why prices are high.)

Peter Shkabara has been producing some circuit boards and is very knowledgeable about H89 add-ons. He may be able to provide a realistic foundation to undertaking the creation of a PD Hardware Bank, and possibly [in the process] contribute a few components. From The Staunch 8/89er I've learned that Peter now conducts business from his home at 8895 Pino Solo Avenue, Atascadero, CA 93422. His new phone number is 805-466-4284. If anyone still does not have his EMULATE multiple disc format software, now's the time to get it!

On another subject: Pat Swayne's suggestion about putting together a CP/M BDOS clone. This has been done, and some are released to public domain. The latest development, to my knowledge, is the ZSDOS version, available from Plu\*Perfect Systems at \$75. Precursors to ZSDOS are P2DOS by Ten Brugge, and 280DOS by Carson Wilson--both of which I believe are public domain. I don't know where you got the idea that BDOS is just a few hundred lines of code. [That's what Pat Swayne told me! - ed] My own disassembly of CP/M's BDOS is close to 4,000 lines long! I think ZSDOS is state of the art (and Plu Perfect, as they say).

This still does not resolve [the question of] what to send someone who [has just] acquired an H89 and doesn't have anything. Unless we can provide a complete MAKEBIOS utility including BIOS source code, an assembler and PREL, distinct versions for every disc drive must be supplied. In the original CP/M distribution kit you received a minimal memory bootable disc and a MOVCPM utility containing a relocatable version of the operating system, coded to work with the small version only. I suspect the MOVCPM utility has both Digital Research and Heath proprietary code beyond the CCP and BDOS segments. I think that the availability of a PD BDOS allows someone to legally put together a bootable disc for someone else's system, but [it is] not yet the equivalent of a [real] distribution disc. I wonder if Pat had something else in mind which would do the trick?

Pat did a very good job supporting the H8 and H89/90 before going on to the H/Z100 and ZPC. I still have his articles about altering clock speed on file. He understandably hasn't any time now to play with ZCPR because he has to make a living! I personally do not see much redeeming value in

the original CP/M simplicity. [You've obviously never heard of "KISS" (Keep It Simple, Stupid!), the epitome of engineering elegance! -- ed]

Thanks for extending my subscription another year. I had halfway hoped that was what you had in mind when you suggested I check my mailing label. Not then noticing any extension I took it as a reminder that my expiration date was upcoming. Now I'm all set for another year! [You're welcome! -- ed]

I hope to resume with NZ-COM and write more about my experience with it. Also I may write directly to Rick Swenton who probably will transmit anything he feels worthwhile to you.

L VAN HEMELRYCK, 16514 14th Ave SE, Mill Creek, WA 98012

[Ludo, thanks for bringing us up to date on what's happening out there in Washington! WE don't find very much wrong with your basic suggestion that The Staunch 8/89er and the JOURNAL acting as archival marshalling centers of Public Domain Hardware. But it has a few important points missing, such as: Where's the money to come from for a full-time employee to handle aquisition, classification, storage, and dissemination of original materials or their accurate reproductions? Who has any space to donate for storage and operation of an Eight Bit PD Hardware Centre? It's a great idea, but until someone with vastly better organisational ability than I have comes along, it remains Just A Great Idea! Regarding CP/M's BDOS code, I received a CP/M V2.2.04 BIOS LISTING with my original distribution discs and manual when Heath was phasing out the H89 kits (never did get an HDOS 2.0 listing!). I've carefully read through all those lines of code but found no clearly marked "BDOS" (Basic Disc Operating System)! Without a label I can't honestly say how many lines of code are involved, and the idea of rewriting sounds terribly labor-intensive. Think I'll leave that to somebody smarter than me! Meanwhile keep those cards and letters coming! -- ed]

Dear Sir:

I am enclosing a \$15 check for one year subscription to SEBHC JOURNAL to make my old H89 computer happy.

ALAN S BLOOM, 1430 Dunn Parkway, Mountainside, NJ 07092

[Dear Alan: I don't know where you found out about our publication, but I am delighted that you have ordered a one-year subscription. Somehow you got the subscription price wrong; it's \$17.50 a full year, NOT \$15. Rather than returning your cheque and earning your ill will, our standard policy is to accept it as payment on a ten-month subscription rather than a full year. We hope you understand. And, if you REALLY want a full year just send \$2.50 more. In either case, enjoy the JOURNAL! -- ed]

Dear Mr Geisler,

I received the April issue of the SEBHC JOURNAL, which is

## STILL MORE READER'S MAIL BOX

all fine and good...but pages 9 and 10 were missing, which is NOT fine and good. Would you please send me the missing pages?

I'm happy to see that you are planning to run a series of articles on HDOS 3.0. I'd love to learn how to create and run BATch files. I haven't been able to figure out that, nor have I been able to figure out how to use the PIP switch that copies a file to another disc and deletes the source when finished. I'd love it if Allie Lingo would cover these matters in future articles.

KARL G RULING, 83 Lawrence St, Wilkes-Barre, PA 18702-1541

[Karl, we're as unhappy over the missing pages as you are! It must be that our leased Canon Copier was having an "April-fool laugh" at the expense of us both! Your sheet is on its way. Now about those HDOS 3.0 BATch files: Allie just sent me a letter and an HDOS 3.0 system distribution disc with some neat BATch files he'd written. As soon as I can get out of CP/M (where I'm composing this edition) and make time, I'll run the HDOS 3.0 disc and see what it does. It looks very interesting and I'll surely write up my experiences with it and publish them Real Soon Now. -- ed]

Dear Lenny--

Here is some information which may be of interest to other readers:

A friend of mine who had the Magnolia SASI hard drive system installed in his H89 wanted to convert to another hard-drive system. I bought all the Magnolia hardware and software from him except for the hard drive, and then bought an ST-225 hard drive for myself. Next--for only \$59.95--I bought an external 2-slot disc-drive cabinet, complete with a fan and 60-watt switching power supply from American Design Components, PO Box 220, Fairview, NJ 07022, (catalog #14514). This cabinet was originally for a Burroughs computer, has a black front and is almost the same shade of grey as the '89. Sitting on a shelf a foot away from my H89 it is a satisfactory match.

The first unit I bought had an output voltage problem, but the folks at ADC exchanged it at no cost at all to me! I added a third power connector to it to accomodate my ST-225, the controller, and a floppy drive. But I think ADC has a configuration like that all ready for a hard drive and one floppy. The only installation problem I had was very slight distortion of the hard drive with controller fastened to it when I installed it in the left-hand slot and tightened all the sheetmetal screws inside the cabinet. Inside the cabinet is an upper horizontal member which fastens to the left side with two recessed-head screws that, when inserted and tightened, very slightly compress the hard-drive chassis and exert a barely-perceptible bending force on the hard drive itself.

In this instance the malfunction was obvious only on the drive's inner cylinders (one-third), otherwise it functioned perfectly on the outer (two-thirds) cylinders during a FORMAT

operation. I also noted that it took five times the normal time to park the heads in the SHIP position. To correct the problem I simply removed the two screws from the horizontal member. Since both drives are still held in place with mounting screws top and bottom they are quite secure. (Of course, I could have enlarged the holes and substitute pan-head machine screws. That would permit some minor headroom positioning adjustment--but it works fine, so why worry?)

I've described my experiences here so that others who may buy one of ADC's drive enclosure should be able to install theirs quicker than I did.

RICHARD L TURK, 274 Lakeshore Drive, Warner Robins, GA 31088

[Hey, Dick! Thanks for the installation notes! I've bought stuff such as 40trk drives, etc., from ADC and have never had any problems with any of them. Frankly, I think your external drive cabinet sounds much better (possibly lighter and smaller too) than Heath's old model H77 external drive package. I have a surplus pair of H77s with full-height, double-sided drives in them which just came back from Mike Morse's shop (see April JOURNAL front page). I had been thinking of putting them with some other '89s which I'm rebuilding, but past experience tells me that they are just too big and ugly for non-computerists to love! If anybody wants an H77, just send \$60 and I'll box one up and ship it out IMMEDIATELY! No profit, just no more shop space! Besides, I'm going to put two half-height double-sided drives in each rebuilt '89 so I won't be needing all those full-height drives. P.S.: Your back-issue problem is being taken care of! -- ed]

Dear Mr Geisler,

I have an H89 with Magnolia controller, two external and one internal 5-1/4" drives. I get more random "BDOS ERROR: BAD SECTOR" messages than should ever occur. Sometimes the system works flawlessly, other times not so. This is NOT due to failure to warm boot after changing discs.

What happens is that the drive-activity light of any drive comes on, but the drive doesn't start running. Then the "BDOS ERROR: BAD SECTOR" message comes on. If I am running a CP/M program such as PIP or STAT, I can quickly open and reclose the drive door and the program then runs properly. This [problem] always happens whenever the B: (I haven't tried C:) drive is accessed from WordStar. Then if I use the open-and-reclose-door trick it results in garbled files instead of normal ones.

Clearly the drives are not starting properly when this occurs. It has recently been occurring much less frequently than when I first got the computer seven months ago.

Does anyone know if this [problem] is most likely due to loose connections, loose drive logic board chips, or a controller which needs servicing?

DAVID E YOUNG, 402 Houghton Street, Ontonagon, MI 49953

## AND MORE READER'S MAIL BOX

[Dave, I don't know anything about your Magnolia problem, but Rick Swenton or Dale Chidester might be able to give you some ideas. I'm also quite sure there are other subscribers who have had similar problems, and I urge them to get in touch Right Away! Incidentally, this problem also occurs with plain-vanilla CP/M; one of my local subscribers has experienced it "numerously" on the soft-sector side of her battle-weary H89. It usually happens after the machine is shut off for more than overnight (it lives in a rather damp basement). I advised her to run a DRY TYPE (not a wet) cleaning disc in all drives, then try re-booting. This has normally cleared up her problem, and the machine then performs very well for another week or so. NOTE: Wet-type drive cleaning discs usually slobber solvent all around inside the drive, which removes lubrication from the head-positioning slides, so never, NEVER use a wet type! (P.S. Your subscription is now quite healthy.) -- ed]

Special note, just in from Rick Swenton:

The "Computer Surplus Store", 715 Sycamore Drive, Milpitas CA 95035, phone 408-434-0168, has XE8EC S1410 SASI controllers for sale at \$89/ea. These'll run the Quikstor Hard disc system just fine. Their catalogue number for the controller--#115. They also have previously-owned Heath/Zenith Z19s and Z29s for sale at \$79/ea!

Dear Mr Geisler,

I read with interest Rick Swenton's "Z-System For Novices" article in the April, 1989 SEBHC JOURNAL. Rick makes a great case for a great system for those needing ZCPR and NZ-COM's sophisticated features. But he did come down a little harder than necessary on [plain] CP/M. A standard CP/M system, especially when the Enhanced Derby CP/M Utility Programs are used, does offer some of the ZCPR features in a simpler form [and] without having to change anything about the system!

Rick failed to credit the CP/M SUBMIT capability, much less when augmented with XSUB, and the Derby Utility SUB, which allows multiple commands and collecting, running, and listing several SUB files from within a single file. And exploiting user areas is made easier with the Enhanced Utility Programs which allow listing or copying files between user areas. The original Derby CP/M Utilities were featured in an article in the Oct '87 SEBHC JOURNAL, page 2.

Ancient as it may seem, CP/M is still widely recognised as the standard 8-bit operating system, and for most 'novice' applications, ZCPR is overkill. And Rick mentioned ZCPR uses 280 code. This excludes the Z100 machines, but I did see an 8080 version of ZCPR on a Z100 on at least one occasion.

My Enhanced Derby CP/M Utility Programs package also feature a compact, fast, and flexible SCAN utility which quickly finds bytes or text from any part of any--or all--indicated files and both ASCII and HEX edits are produced. The Utility Program package is available from me for \$25. My CLE Command

Line Editor is \$15, or, if you order both packages the total cost is only \$35, NO charge for postage inside the US.

WILLIAM S DERBY, P O Box 2041, Livermore, CA 94550

[Hey, Bill! You're absolutely correct. Your Utilities Programs pretty much do many of the things ZCPR does, and without that "installation" fol-de-rol which can be totally devastating for most novices. Ages ago you sent me a beta copy of your Utility Programs which I tried out and reviewed in the JOURNAL. I don't think that package had SCAN in it, and I'm sure that CLE wasn't there either. But what I tried out worked exactly as you said they would and that's good enough for me. But I must disagree somewhat with your opinion that ZCPR is too complex for novices to use. If it has been properly installed, ZCPR-3 (which came with my D-G Super89 CPU BIOS mod kit from Livingston Logics Labs) is quite labor-saving. It has something resembling the MS-DOS and Z-DOS 'path' function which lets you call a program from any disc you are running on. That is, you booted on A:, switched to C: and are running an editor there. To PIP an edited file to the printer without having to switch back to A:, you merely enter PIP LPT:=C:fname.txt<cr> and ZCPR loads PIP from the A: boot disc, picks up fnam.txt from C: and sends to the LST or LPT device. When PIP is finished, the C: prompt comes back. In fact, my ZCPR implementation often runs the 'path' to and from programs saved in different User Areas. But that is NOT something for untrained or inexperienced novices to try! So, all you novices, get in touch with Bill Derby, Real Soon Now, y'hear?! His Enhanced Utility Package is Just Great! -- ed]

Dear Lenny,

Just a note to let you know that I've got my drives up and working ok. That [expletive] #2 external drive had "only" a couple things wrong with it: first, a type TIP-110 transistor was dead; second--hold onto your seat--a blown drive motor. At California prices that drive motor is/was \$35, plus 6% tax. Needless to say, the April issue arrived the same day I got my drives back!

As to why your drive wouldn't work [in my H77], my friend mumbled something about (mumble) masking something out! Some people it just doesn't pay to listen to!

SPRING SMITH, 6055 Gary Place, San Luis Obispo, CA 93401-8228

[Glad to hear your machine is back up & running! You didn't say if it was \$35 for the drive repair (parts included), or was labor extra? Considering that we both sank many bucks in long-distance calls, you're lucky (probably quite relieved also) to have finally gotten your drives working. You might not have guessed it, but I had just gotten all the materials ready to pack and ship you an extra H77 drive setup for tests when your note arrived. Now I have even more surplus H77s! Do you or anyone else you know want an H77 Real Cheap? Both drives in them are double-sided 80-track with I/O cable units

## YEP! MORE READER'S MAIL BOX

which Mike Morse (Michigan Computer Repair Services) has rehabilitated. How about \$50/H77, shipping extra? Write Real Soon Now. -- ed]

Dear Lenny,

Sometimes it takes me a while to act on something which catches my attention in the JOURNAL. R K Strum's article on "Using H89 Cursor and Function Keys with WordStar Release 4" back in Volume II No 10 was of great value to me.

Previously I had been using KEYMAP in conjunction with WordStar; the problem with that was--when using a SUBMIT file on loadup--it was slow. Today I actually took time to patch the function keys (the way I wanted them) using Ken's example.

Only then I was lacking the 24th-line display I'd had with KEYMAP. Ken's article indicated that the available Autopatch file contained a 25th line. So I got to thinking--how can I patch that into WordStar? I jumped on the Terminal Initialization String (TRMINI), but it only had 5 bytes of space--not enough for a 55(hex) byte patch. I struggled with that for a few hours, trying all sorts of conventional and unconventional techniques but without success.

Finally, after the umpteenth scan through the WordStar manual, I found it on page 319 in Appendix C, "If the sequence is too long, redirect the string to another patch area by typing FF as the length byte. Then type the address, low byte first, where the long string is actually located."

WordStar doesn't seem to "buy into" just any available patch area; but I found that it worked well using the CRTPAT area as in the following example:

Two patches enable line 25 and identify function keys:

```
TRMINI=FF,DB,04--Indicates TRMINI Patch Area redesignated
to CRTPAT (04DB) [FF Indicates patch is too large
to fit this (5 byte) area, 04DB is address where
patch will actually be located (must enter address
low byte first)]
```

```
CRTPAT=58,18,20,50,18,6A,18,78,31,18,59,38,20,18,70,
='   DONE  SAVE  BOLD  U-LINE  HELP  UNDO',
=' COPY  MOVE  CENTER',18,71,18,68
[ESC spc P (18 20 50) enables Greek/Math Character Set,
ESC j (18 6A) remembers cursor position,
ESC x1 (18 78 31) enables 25th line,
ESC Y8 space (18 59 38 20) positions cursor on line 25,
ESC p (18 70) Enables Reverse Video,
text is then displayed on line 25,
ESC q (18 71) disables reverse video, and
ESC k (18 68) returns cursor to previously-saved
position.]
```

I patched my function key table (FUNTBL) as shown below. I include this because I hope it will be just a bit clearer to follow than Ken's example for those who wish to redefine

their function keys differently. Starting at the address for FUNTBL, enter the HEX digits from Column One in the order shown. Column Two lists the feature of the key, while Column Three indicates key's original and remapped code sequence.

COLUMN ONE	COLUMN TWO	COLUMN THREE
		Function/Key
02 18 53 02 08 44	SAVE & EXIT	f1 (ESC S)-->(^KD)
02 18 54 02 08 53	SAVE & CONTINUE	f2 (ESC T)-->(^KS)
02 18 55 02 10 42	BOLD TOGGLE	f3 (ESC U)-->(^PB)
02 18 56 02 10 53	UNDERLINE TOGGLE	f4 (ESC V)-->(^PS)
02 18 57 01 0A	HELP	f5 (ESC W)-->(^J)
02 18 4A 01 15	UNDO	Erase (ESC J)-->(^U)
02 18 50 02 08 43	BLOCK COPY	Blue (ESC P)-->(^KC)
02 18 51 02 08 56	BLOCK MOVE	Red (ESC Q)-->(^KV)
02 18 52 02 0F 43	CENTER LINE	White (ESC R)-->(^OC)
03 18 3F 71 02 11 43		Keypad Key
	BOTTOM FILE	1 (ESC ?q)-->(^QC)
03 18 3F 72 01 18	CURSOR DOWN	2 (ESC ?r)-->(^X)
03 18 3F 73 01 03	PAGE DOWN	3 (ESC ?s)-->(^C)
03 18 3F 74 01 13	CURSOR LEFT	4 (ESC ?t)-->(^S)
03 18 3F 75 01 16	INSERT TOGGLE	5 (ESC ?u)-->(^V)
03 18 3F 76 01 04	CURSOR RIGHT	6 (ESC ?v)-->(^D)
03 18 3F 77 02 11 52		
	TOP FILE	7 (ESC ?w)-->(^QR)
03 18 3F 78 01 05	CURSOR UP	8 (ESC ?x)-->(^E)
03 18 3F 79 01 12	PAGE UP	9 (ESC ?y)-->(^R)

Other keys can also be redefined, such as the keypad 0, period, and enter, but I chose not to use them for the time being.

GARY S MELANDER, CPO Mess, USS Siapan (LHA-2), FPO New York, NY 09549-1605

[Thanks for this very important information! Also thanks for donating the hard-sector disc you sent the above file on. We understand your wanting to phase out hard-sector discs, but I think you should hang onto a box or two "just for old time's sake". You'll never know when they may come in handy. You readers should also take note of Gary's new address! -- ed]

Dear Lenny,

Thanks for printing my CRYPTO program [CRYPTO.BAS]. I hope it gives some readers pleasure. I had sent the program to Terry Hall a while back for [his] use in creating cryptograms, as well as help in solving them. I hadn't thought of that application when I [originally] wrote it, but it serves that purpose rather well; it allows the creator to see both the "crypt" form as well as the "clear" form, together with any changes he wishes so as to come up with as puzzling a final cryptogram as he'd like.

One puzzling thing about your presentation: In Figure 1, page 9, you showed what I know as a "word finder" as an exam-

# SEBHC JOURNAL

Volume III, Number 11, Page 8

## (SIGH...) AND MORE MAIL BOX

ple of a "typical newspaper cryptogram". I hope that doesn't confuse any of your readers who might take the trouble to type my program's code. The program does not handle that type of puzzle. It does only the kind I have enclosed as an example. This particular 'gram uses quotations [made by public figures or famous people].

I've also enclosed printouts of screens which appear during solution of the above example cryptogram. The first one is after entering the crypto. The second is a working screen, about half-way through, and the last shows the solution. I hope this clears up any misunderstanding as to what the program does.

JOHN V WERT, 21 High Road, Levittown, PA 19056; 215-945-0397

[Hey, Jack! It's pretty obvious that I don't know anything about puzzles, games, cryptograms, and other such fun fare! Actually, what happened was that I somehow lost the original example illustrations you had sent along with the program listing. Because I had virtually zero time left before "putting the JOURNAL to bed", in desperation I clipped what I thought was a cryptogram from an old copy of "GRIT" and used it as Figure 1. Phooey on me! Your new illustrations appear below. -- ed]

Entry Screen:

OK, type in your CRYPTOGRAM, using all CAPS.  
Type the first line and hit RETURN.  
Do not type past mark shown below.

'H YHFP QBP FHWM AC BTZAU RBPUP

Now type in the next line and hit RETURN.

WAOAME FWARI RBSQ'I NAHWN AW. H'Z

And now the last line (and RETURN).

WAQ HWQA VAZPME.' - SWME FSTCZSW.

Partially-Solved Working Screen:

' I I E T H E I H D R W H E R E  
' H Y H F P Q B P F H W M A C B T Z A U R B P U P  
W S W H A T ' S I I ' D  
W A O A M E F W A R I R B S Q ' I N A H W N A W . H ' Z  
T I T D E ' - A A D A .  
W A Q H W Q A V A Z P M E . ' - S W M E F S T C Z S W .

Change which letter ?

LETTER POOL -> B C F G J K L M N O P Q U V X Y Z

Fully Solved Working Screen:

' I L I K E T H E K I N D O F H U M O R W H E R E  
' H Y H F P Q B P F H W M A C B T Z A U R B P U P  
N O B O D Y K N O W S W H A T ' S G O I N G O N . I ' M  
W A O A M E F W A R I R B S Q ' I N A H W N A W . H ' Z  
N O T I N T O C O M E D Y . ' - A N D Y K A U F M A N .  
W A Q H W Q A V A Z P M E . ' - S W M E F S T C Z S W .

Change which letter ?

LETTER POOL -> J P Q V X Z

Figure 1 -- A REAL Cypher Example

### CELEBRITY CIPHER

Celebrity Cipher cryptograms are created from quotations by famous people, past and present.  
Each letter in the cipher stands for another. Today's clue: T equals U.

' H Y H F P Q B P F H W M A C  
B T Z A U R B P U P W A O A M E F W A R I  
R B S Q ' I N A H W N A W . H ' Z  
W A Q H W Q A V A Z P M E . ' -  
S W M E F S T C Z S W .

PREVIOUS SOLUTION: "My riches consist not in the extent of my possessions but in the fewness of my wants." — Brotherton.

© 1989 by NEA, Inc. 220

Dear Lenny,

Thanks for sending the Game Discs. I haven't really played with them much. I haven't even booted the HDOS Disc!

On another matter: I just installed Lee Hart's SuperSet mod [and would like to say] the manual is well written and the mod isn't too complicated if you can solder and count IC pin numbers.

The only problem I have is that the mod runs the Terminal Logic Board at 3MHz and in my case I have to install faster CPU and CRT controller ICs. I have them ordered and will wait to see if they cure my problem. The TLB I modified was an older version which was QC-ed in in 1978. I have two other--newer--boards but swapping CPU and CRT controller ICs didn't help.

My only complaint is: If I'd known ahead of time that [the faster clock speed] might be a problem I would have spent the less than \$10 for faster parts, just to have 'em in case I needed them.

I may write an article for the SEBHC JOURNAL when everything is right [with my TLB].

RICHARD BUTLER, RFD #1, Box 303, Springvale, ME 04083

## NO MORE READER'S MAIL BOX!

[OK, Dick; turn on your computer, load HDOS & MBASIC, and RUN the programs on that disc! I have an early version SuperSet kit in my Super H89A, the only portion of which I appreciate are faster TLB operation and lower power consumption. (Those extra character and graphic fonts I only use to impress folks who think that "obsolete" 8-bit computers can't do anything.) But since this kit didn't cost anything--Lee Hart installed it as partial payment for use of my H89A during HUGCON VI--I really can't complain! Eventually I may restore the original Heath character generator parts (without changing anything else) because I'm forced to enter CTRL-f2 every time I turn my computer on, do a warm boot, or exit programs which do an ESC-z (reset screen to power-up status) on exiting. Wonder if Lee has a patch for that "bug" yet?! About that article--send it in when you're ready; our readers surely will appreciate your input. -- ed]

=====

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Call/Write: Richard Butler, RFD #1, Springvale, ME 04083, phone 207-324-8084.

=====

### EDITOR'S HINT FOR HDOS USERS WHO OCCASIONALLY RUN CP/M-80

Regularly you're using mixed 40 and 80 track drives with an H-17 controller in your H-8 or H-89, and are quite spoiled by the way HDOS boots 40/80-track discs in an 80-track drive. But you've tried to boot 40-track CP/M discs in the 80-track drive only to see your computer go catatonic! So you want to make an 80-track hard-sector bootable CP/M system disc and can't figure out how to do it. Here's how:

- 1- Make a fresh standard 40-track CP/M system disc and put CONFIGUR.COM and PIP.COM onto it. Now boot it in drive A:.
- 2- Run CONFIGUR, & set this disc's drive A: for ZERO step. The disc won't boot any more in drive A:.
- 3- Set the new disc aside.
- 4- FORMAT an 80-track disc in B: from your regular system disc mounted in A:.
- 5- SYSGEN the 80-track disc. Leave it in drive B:.
- 6- In drive A: swap system disc and new 40-track disc made in steps 1 & 2 above.
- 7- From new 40-track disc in A:, PIP BIOS.SYS[RV] to new 80-track disc in B:. It will now boot in the 80-track drive!

Note: SYSTEM and BIOS.SYS must be on the first (outermost) track of any 80-track disc for it to boot in 80trk drive!

=====

The following text was sent to us by Fred Rose md of Bellingham, WA. Will some subscriber translate this for him PLEASE? This hardcopy came from his FINA-equipped H125 line printer--and we can't fathom how it happened! If you can explain it, please let us know, Real Soon.

— RELEASE.MOT —

November 14 1988

This file contains last-minute information about NZ-COM.

### NZ-COM RELEASE 1.2

NZ-COM= version 1.2 includes two changes of significance. Firstly due to the oversight of the previous version 1.1 was to be loaded to the diskette if the user had not loaded it previously. This was a mistake as the user would not be able to load it if they had not loaded it previously. This has been corrected so that the user can load it if they wish.

The second change was to the safety checking performed by NZ-COM. This was to be a safety check to ensure that the user was not loading a program that was not a valid program. This was a mistake as the user would not be able to load a program that was not a valid program. This has been corrected so that the user can load a program that is not a valid program.

### ===== NZ FILES: NZCPM.LBR NZFCP.LBR NZRCP.LBR

The three NZ-COM.LBR files contain the standard configurations for the three different versions of the program. The user can load the program and it will load the correct version. The user can also load the program and it will load the correct version. The user can also load the program and it will load the correct version.

### ===== NZ PROGRAM: NZTYP 4

The NZTYP 4 program is a program that is used to create a new program. The user can load the program and it will create a new program. The user can also load the program and it will create a new program. The user can also load the program and it will create a new program.

### ===== TCSELECT: PROBLEM

A problem has been discovered with the operation of TCSELECT. The problem is that the program will not load the correct version of the program. The user can load the program and it will load the correct version. The user can also load the program and it will load the correct version. The user can also load the program and it will load the correct version.

### ===== EAST: PROBLEMS

There are some unfortunate serious defects in the coding of EAST. The defects are that the program will not load the correct version of the program. The user can load the program and it will load the correct version. The user can also load the program and it will load the correct version. The user can also load the program and it will load the correct version.

### ===== VLF: VERSIONS

The VLF files contain the versions of the program. The user can load the program and it will load the correct version. The user can also load the program and it will load the correct version. The user can also load the program and it will load the correct version.

i EnE # RELEASE.MOT -

### Directory of disk B:

11C11988.	2K	1ERA	.COM	2K	1NZFCP	.LBR	6K	1SPOP	.COM	2K	
11Z-COM	6K	1FF	.COM	4K	1NZRCP	.LBR	12K	1SUB	.COM	4K	
1VERS-1.2	6K	1FINDF	.COM	4K	1P	.COM	2K	1TCSSELECT	.COM	4K	
ALIAS	.CMD	4K	1HELP	.COM	4K	1PATH	.COM	2K	1UNCR	.COM	6K
ARUNZ	.COM	6K	1IF	.COM	4K	1POKE	.COM	2K	1VIRPACK	.COM	2K
COMP	.COM	4K	1JELDR	.COM	10K	1PUBLIC	.COM	2K	1VIEW	.COM	6K
COPY	.COM	6K	1LDIR	.COM	2K	1RELEASE	.NOT	4K	1Z3LOC	.COM	4K
CPSET	.COM	2K	1LGST	.COM	4K	1REN	.COM	2K	1Z3TCAP	.TCP	12K
CRUNCH	.COM	6K	1LPUT	.COM	6K	1SALIAS	.COM	8K	1ZEX	.COM	4K
DFA	.COM	4K	1LX	.COM	4K	1SAVE	.COM	4K	1ZEX	.RSX	2K
DIR	.COM	4K	1LZCOM	.COM	6K	1SAVENDR	.COM	4K	1ZEX4	.COM	6K
EASE	.COM	6K	1INZCOM	.COM	12K	1SRZ	.COM	6K	1ZEX4	.DOC	16K
EASECMD	.COM	4K	1INZCOM	.LBR	14K	1SHOW	.COM	12K			
EDITNR	.COM	6K	1INZCP	.LBR	22K	1SP	.COM	2K			

54 Files. Used = 299K. Free = 14K.

## "DEAR DOROTHY MATRIX"

Ms Dorothy Matrix, c/o The SEBHC JOURNAL

Dear Dot,

Are you related to Mr Martin Gardner's friend, Professor Matrix, often mentioned in the pages of Scientific American? If you are, how is the old gentleman's health holding out these days?

But I digress! The purpose of this letter is not to enquire about the health of old acquaintances. Actually, I'd like to be of some help to "Desperate" of Oklahoma. I happen to have several H89s, also an H25 printer, not to mention that I've been using Magic Wand/Peachtext since '82. So here are some pointers:

1. The Fina "semissoftware" has a rather lengthy set of printer codes of which I have a copy. If "Desperate" (or any one else for that matter) is interested, I shall be happy to 'Eks-rocks' it --for costs, of course--for them.

2. The proper Magic Wand/Peachtext syntax for sending code to the [H25] printer is: \out27,71\

where "\" is the command sign, "27" is the ASCII code for ESCape, "71" is the ASCII code for capital letter G, and the last "\" indicates end of command.

Such a command can be inserted anywhere in a text file, even in the middle of a word. It will have immediate affect on the printer, but it WILL NOT be printed in a document (that is, not without heroic effort).

3. The syntax for sending out [H25] printer codes from M-BASIC is:

```
LPRINT CHR$(27)+"G"
```

where CHR\$(27) is the ESCape code, and "G" (the cat's claws are VERY important) is the actual command character.

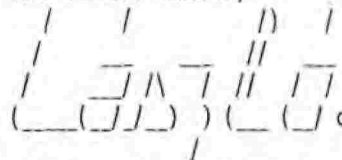
Incidentally, ESC-G is Fina's firmware code for "Near-Letter-Quality print". It is a toggle, that is, the first occurrence places the printer in NLQ mode, the next occurrence puts it back into Draft mode. I don't particularly like it this way, but it is a very small inconvenience, compared with the vast advantages of Fina's firmware.

Most H/Z-89 owners have a page somewhere in their operation manual which lists the ASCII codes. For those who don't have such a list, here's an MBASIC program which prints out those codes on the Fina-equipped H25:

```
10 REM          PRTASCII.BAS      Prints all ASCII characters
20 REM  by Lazlo M Vesei, 420 Philip Rd, Niles, MI 49120
30 REM
40 LPRINT CHR$(27)+"G":REM      * Toggle NLQ ON
50 FOR X=0 TO 25
60 FOR Y=0 TO 9
70 Z=10*X+Y:T=8+Y+1:REM        * 8 columns x 25 lines, spaces
80 IF Z>4 AND Z<10 THEN T=T-2
90 IF Z>6 AND Z<10 THEN T=T-1
100 IF Z=9 THEN T=T-2
110 LPRINT TAB(T) USING "###";Z;:REM  Prints neat array
120 IF Z=256 THEN 220
130 IF Z=127 THEN 190
```

```
140 IF Z<2.6 OR Z=7 THEN 190
150 IF Z>8 AND Z<16 THEN 190
160 IF Z=20 OR Z=25 THEN 190
170 IF Z=27 OR Z=32 THEN 190
180 LPRINT TAB (T+4)CHR$(Z);
190 NEXT Y
200 LPRINT:LPRINT
210 NEXT X
220 LPRINT CHR$(12):END
```

Your sincere admirer,



LASZLO M VESEI, 420 Philips Road, Niles, MI 49120

Dear Friend Laszlo,

No, I'm not related to that darling Professor (Ah, cruel fate!). But thank you for asking. And I'm sure that our so "Desperate" friend in Oklahoma (and another equally "desperate" friend of ours in Bellingham, WA) will surely thank you for sending such a very informative letter to us!

The chart of FINA ASCII characters and graphics codes are reproduced on the opposite page. I think that's a very nice thing for you to have done, and I hope that the reproduction is sharp enough that everyone can see everything. I noticed that the top line has four blanks, then characters start at numeral four. Also there are no characters printed alongside numerals 255 and 256. Are these "invisible characters" or doesn't Fina have anything for those spaces?

But thank you again, Laszlo dear, for writing to us. You have a very big heart!

/DOT/

Dear Dot,

My dear old MX-80 (with DotsPerfect upgrade installed) now won't print straight vertical columns/lines. I can't find a qualified service shop to fix it & the former HEATHKIT Electronics Center I bought it from won't help me! Can you?

SAD 8-BITS in Michigan

Dear SAD MI 8-BITS,

I'll try to answer you in the next SEBHC JOURNAL edition, so do try to be patient. Some of our readers may contact the JOURNAL and give us names and addresses of Factory-Authorised shops in Central Michigan capable of repairing any enhanced or plain MX-80 for an affordable charge (smaller than the national debt, that is)! Meanwhile, Good Luck to you and may all your future printouts be sharp and straight.

/DOT/

**"DOT MATRIX" -- Concluded**

Table One - Fina Firmware H125 ASCII and GRAPHICS  
Characters Produced by MBASIC Program on Page 10.

0	1	2	3	4 ♦	5 †	6 ‡	7	8 ▣	9
10	11	12	13	14	15	16 ►	17 ◄	18 ‡	19
20	21 §	22 _	23 ‡	24 ↑	25	26 →	27	28 ←	29 #
30 ▲	31 ▼	32	33 !	34 "	35 #	36 ‡	37 %	38 &	39 '
40 (	41 )	42 *	43 +	44 ,	45 -	46 .	47 /	48 0	49 1
50 2	51 3	52 4	53 5	54 6	55 7	56 8	57 9	58 :	59 ;
60 <	61 =	62 >	63 ?	64 @	65 A	66 B	67 C	68 D	69 E
70 F	71 G	72 H	73 I	74 J	75 K	76 L	77 M	78 N	79 O
80 P	81 Q	82 R	83 S	84 T	85 U	86 V	87 W	88 X	89 Y
90 Z	91 [	92 \	93 ]	94 ^	95 _	96 `	97 a	98 b	99 c
100 d	101 e	102 f	103 g	104 h	105 i	106 j	107 k	108 l	109 m
110 n	111 o	112 p	113 q	114 r	115 s	116 t	117 u	118 v	119 w
120 x	121 y	122 z	123 {	124	125 }	126 ~	127	128 Ç	129 ü
130 é	131 á	132 ã	133 à	134 â	135 ç	136 è	137 ë	138 ê	139 ÿ
140 î	141 ï	142 Å	143 Ä	144 å	145 æ	146 Æ	147 ø	148 ö	149 ð
150 û	151 ù	152 ŷ	153 ð	154 ü	155 †	156 £	157 ¥	158 ¤	159 f
160 ¤	161 ÿ	162 ó	163 ú	164 ñ	165 ñ	166 ñ	167 ñ	168 ¿	169 ¯
170 ¯	171 ½	172 ¼	173 ⅓	174 «	175 »	176 ☼	177 ☼	178 ☼	179
180 †	181 ‡	182 ‡	183 ¶	184 ¶	185 ¶	186 ¶	187 ¶	188 ¶	189 ¶
190 ¶	191 ¶	192 ¶	193 ¶	194 ¶	195 ¶	196 ¶	197 ¶	198 ¶	199 ¶
200 ¶	201 ¶	202 ¶	203 ¶	204 ¶	205 =	206 ¶	207 ±	208 ¶	209 ¶
210 π	211 π	212 π	213 π	214 π	215 #	216 #	217 J	218 r	219 ■
220 ■	221 ■	222 ■	223 ■	224 α	225 β	226 Γ	227 π	228 Σ	229 σ
230 μ	231 τ	232 ϑ	233 θ	234 Ω	235 δ	236 ∞	237 ø	238 €	239 n
240 ≡	241 ±	242 ≥	243 ≤	244 (	245 J	246 ÷	247 ≈	248 °	249 •
250 •	251 ✓	252 η	253 z	254 .	255	256			

## LET'S LIGHTEN UP!

These Computer-oriented Cartoons Courtesy of Terry Hall



"YOUNG MAN, YOU MARCH STRAIGHT DOWN THE HALL TO THE COUNSELOR'S OFFICE AND SEE THE COMPUTER..."



FROM Volume III, Number 10, Page 6

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