PORT TO PORTAL -- Editorial

The heavy subject of **copyrights** came up in correspondence during December. You'll find contrasting views presented in this issue's abbreviated letters column and my own thoughts on the topic. Believe it or not, right now could be a critical period for us. I know that some of you are getting very antsy because some vendors are apparently ignoring our requests to release their software into the public domain. But you'll find two vendor's viewpoints in VENDOR.UPDATE. Though I'm certainly not happy with them, I **still** respect them!

By way of new things, I introduce a "for sale/swap/wanted" section in this issue. **Staunch** hasn't had one before, but I think the time is ripe for a more formal place for that sort of thing. It's appropriately called "CONTACTS."

Further, I got a call from Rick Streeter over New Years. He told me his hard disk system had crashed, hence he couldn't supply his HDOS 3.0 column on schedule! I regret that and wish Rick well in his recovery effort. But I should add that I **have** placed some limits on his contributions. Those are to appear quarterly, with a maximum of 1,500 words each. There is far too much other material to cover for **Staunch** to become an HDOS 3.0 journal!

The next issue is a case in point. Lee Hart concludes a potpourri of things in this one, but he returns in the next with a fractal graphics program for MBASIC. In addition, I hope to complete a different-style fractal program for those running Pascal, specifically the Lucidata implementation I acquired late last summer. I expect to devote two or three pages to graphics.

Finally, I must thank **Staunch**'s creator and current contributing editor. He prepared the cumulative index you'll find on this issue's insert. I henceforth expect to include an annual index in the January issue.

Kirk L. Thompson

THE EIGHT-BIT R/W -- LETTERS

Copyrights

[From Leonard Geisler, Editor, **SEBHC Journal**, Ann Arbor, MI] I'm delighted that you've been able to make waves with Heath Co.! The SEBHC JOURNAL carried your letters--some we condensed. Now, if we can only get Newline Software, Software Toolworks, Microsoft, and others who are so very dog-in-the-manger-like to likewise release their no longer sold or supported H/Z 8-bit stuff into the public domain it would be just great...

Please let me know your position on "copyright busting". If you or your readers have any practical ways to do it without anyone "dumping" on us, please pass them along. It's time for manufacturers and vendors to excercise a little compassion for the loyal 8-bit machine users, now that Joe Katz on CompuServe is doing his part to continue support for loyal H/Z users, no thanks to Zenith!

[From a letter Mark Hunt, Barrow, AK, sent to 60 vendors and software authors] Would like to urge an act of charity upon you; one that isn't likely to cost you anything, or much, and one that will earn for you a fair debt of gratitude from that multitude of people who respect your work. Why not consider releasing your HDOS 2.0 software into the public domain?

After all, you're probably not making a whole lot of money off it now ... Every month, every year, we end-users discover new uses for our computers. Problem is, we HDOS-oriented folk can no longer find the software ... Now some have solved this problem by swapping software. [But it s]eems to me that a more elegant solution exists - simply talk software authors into releasing their HDOS work into the public domain.

Another point, before I close. You may know that folk at **The Staunch 8/89'er** are retyping Heath's public domain HDOS 2.0 manual, and, in the process, are adding **a lot** of new material. If you were to send your software - and your documentation...- to them, then they could include your work as well. A form of immortality, I suppose...

[It's y]our business, of course, whichever course you decide to take, and there can be no criticism of your decision. After all, your software is your property. But, it **would** be nice, and it **might** be tax-deductable!

Look forward to seeing your name, and the name of your software, in the literature.

[Thanks to Lenny and Mark for airing **both** sides of the copyright issue. In terms of convenience for us still running 8-bit equipment, it would **certainly** be nice to have stuff like Newline's TXTPRO, Microsoft's MBASIC--and scads of other things I'm sure you could add to the list--in the public domain. I wish vendors would, as Lenny puts it, be a little more compassionate. However, in my opinion, some explanations are valid **business** judgments; for two such--actually one--see this issue's VENDOR.UPDATE section. Businesses aren't in the business of being compassionate, though many find it's good p.r. to do so. Moreover, there is a legal side of the coin.

[This reverse side is that the software is either **owned** or **licensed** by the vendor as Mark mentions. As an example, I would be incensed if someone photocopied and sold **Staunch** without my permission. Frankly, I would even consider small claims court! I think Lenny would take the same view toward his **Journal**. And under current law, the mere fact that something is published **implies** a copyright by the author, even if it isn't registered at the Copyright Office. The only way that connection between publication and copyright can be broken is by the **explicit** declaration of intent by the author.

[If the author doesn't, unauthorized duplication and sale can incur criminal penalties. Now in the real world, there is less likelihood of the authorities pursuing individual hobbyists for copyright infringement. But electronic bulletin

board operators (as mentioned by Tom Jorgenson in VENDOR.UPDATE), Lenny, and I are a different story. **Because** of our public exposure, the authorities are more likely to "dump" on us, to use Lenny's term, than the individual hobbyist. I don't know about Lenny, but I'm rather protective of my derriere!

[Finally, the **moral** side to that same coin is worth considering, and the consequences of immoral behavior. Though "ancient" history now, I must remind you that swapping commercial software has **already** cost us two exceptional systems programmers. I'm speaking of Dean Gibson of UltiMeth and Ray Livingston of Livingston Logic Labs. In the early '80's the former developed an excellent device driver for hard-sector drives under HDOS, still sold by HUG (885-1121), and the assembler needed to assemble HDOS 3.0 (available from Quikdata, Inc.); the latter modified Heath's CP/M BIOS and sold it as BIOS-80 (still available from Quikdata). **Both** discontinued software development for our systems because of copyright violation by users!

[So, as Jorgenson reminded me in his note, the acts of a few **can** make life worse for the many. And I am **very** concerned that "'copyright busting'" by some few could make attempts to persuade vendors and authors voluntarily to release their materials into the public domain even **more** difficult, if not impossible, than it already is. So I personally take a dim view of even clandestine copyright infringement.

[In my judgement many vendors will eventually come around. But it will take patience and persistence. I believe we have to consider the campaign over the long-term. And I **don't** want the war lost because a few sappers just happen to win a battle or two. We all lose that way! -Ed.]

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CONTACTS

(A Wanted/For Sale/Swap Column)

AL BJORLING (P.O. Box 917, Melville, NY 11747, [days] 516-420-3328, [nites] 516-424-8843) -- "Wanted - Magnolia soft sector controller board - operating, used."

HENRY MOORE (200 La Questa Way, Woodside, CA 94062) -- "I have a bunch of H89's and various peripheral stuff and software in storage." [I asked Henry for an inventory for this issue, but he didn't get it to me in time. -Ed.]

WILLIAM R. THOMASSET (7103 Cody, Shawnee, KS 66203, [home] 913-631-1906, [office] 913 236-7200) -- "...my office changed operating systems and my H89 has fallen into disuse. The system ... is the standard H89, 64k RAM installed. It has a single full height floppy drive installed with the CPU and two additional full height drives installed with a separate power supply in a PC-XT enclosure. It also has the CP/M operating system and copies of WordStar and SuperCalc as well zs fifty additional floppy discs. This machine is in excellent operating condition with all cable included for immediate setup. Hardware documentation is also included for do-it-yorselfers. I will sell the entire system for $200...."

RICK INDIANO (1080 Farnsworth Rd S, Rochester, NY 14623-5447, 716-359-2520) -- "I ... have many H8 boards that I would like to sell. These include Heath 46K RAM cards, H17 controller card, 8080A CPU, 16K and 8K static cards (to mention a few). I am also looking for a graphics board for my H8/H19 and will consider a trade or outright purchase."

MARK KAVANAUGH (2510 Oak Park Court, Merritt Island, FL 32953-4134, 407-452-1409) -- "I am writing you in hopes of finding a home for my H89. I recently bought one for $225 with a built in disk drive, an extra disk drive, a serial card and 10 disks of software including CP/M, SuperCalc and a word processor, etc. The machine is in good condition and runs fine but I have not had time to work on it at all ... I am asking $175 for the entire package but I will entertain any reasonable offer."

STEPHEN C. VANDIVERE (309 Maple Rd, Lexington Park, MD 20653) -- "I have recently given a lot of stuff to the local humane society, but thought it far more likely I'd find a good home for the following items through the newsletter:

"a. Hard-sector disk diagnostic and conversion utilities (came with the H17 kit ...).

"b. Supermath1 (soft-sector format) by Larry V. Toenes, with original hardcopy. Math tutorial grades 1-6...

"c. UVMAC (soft-sector format) from S/W Toolworks. I needed an assembler for a course I took (in a hurry) and didn't know (this is embarrassing!) I had M80 and L80 in connection with my BASIC compiler. [I know how that is! -Ed.]

"d. Interface reference manual for Royal typewriters (Alpha 620C or Beta 8200C)...

"e. Heathkit cassette interface board.

"I would like a pittance to cover the cost and trouble of mailing these items to their new homes and leave up to the requestor to decide what a 'pittance' is. In addition to the above, I have an Epson model 8141 serial interface board for the MX-80. It is not compatible with the Dots Perfect upgrade, and I will need it only if my SK-203 printer buffer ... breaks. If somebody really needs it, I could be talked out of it."

THOMAS G. CAULFIELD (88 High St, Rockport, MA 01966) -- "...I have two H89/90s in my possession that are basically sitting there doing nothing ... These are home built originals, both work perfectly. One has a standard screen and one has a green screen. Both have 64k of memory and one has an additional case with extra drive installed. They are the original hard sector types and have not been modified to handle soft sectored media.

"I would be willing to package these up together with any software and all documentation and ship them for 200 bucks plus shipping costs. Actually the price is very negotiable but I did want to get back at least the tax I paid on the original purchases ... I do think these units deserve to be more than doorstops....

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OF RESERVED TRACKS, PIE AND WAND

By Lee Hart
28612 Middle Crossing Road
Dowagiac, MI 49047 (616-782-3980)
(Concluded)

Tricks with Magic Wand. I use Magic Wand for most of my editing (and its clone, Peachtext 5000 on 16-bit machines). Despite their excellent manual, here are some useful tricks that took a long time to discover.

Did you know that you can search for RETURNs? Normally, the RETURN key ends a FIND or REPLACE command, so you can't search for it. Solution? The TAB key substitutes for RETURN when searching!

Suppose you accidentally hit RETURN in the middle of a line, splitting the line and returning the cursor to the left margin. You normally have to move the cursor back to the offending RETURN, and hit DL (delete line) twice to get rid of it. Instead, just move the cursor up a line and use the following:

```
Hit BLUE    (find...)
    TAB     (... the next RETURN)
    BLUE    (replace it with...)
    RETURN  (...nothing!)
```

Once set up, the RED key (repeat last FIND/REPLACE) removes the next RETURN with a single keystroke.

Suppose you have a document with a RETURN at the end of every line, like that produced by most other word processors. You can automatically remove ALL excess RETURNS as well, to convert such files into Magic Wand documents as follows.

```
1. Hit BLUE    (find...)
       TAB TAB (... a pair  of RETURNS, which marks
                the end of a paragraph)
       BLUE    (replace it with...)
       .END.   (...something distinctive without
                RETURNS, like .END.)
       BLUE    (to the end of the document)
       RETURN  (ends the command)

2. Hit ctrl-T  (to return to the top of the docu-
ment)

3. Hit BLUE    (find...)
       TAB     (... all RETURNs)
       BLUE    (replace with...)
       BLUE    (... nothing)
       RETURN  (for the entire document)

4. Hit ctrl-T  (to return to the top again)

5. Hit BLUE    (find...)
       .END.   (... our .END. of paragraph marker)
       BLUE    (replace with...)
       TAB TAB (... two RETURNs again)
       BLUE    (for the entire document)
       RETURN  (do it)
```

First we marked the "real" end of paragraphs with something distinctive. Then we deleted all RETURNs. Finally we replaced the RETURNs at the end of paragraphs to complete the conversion.

Magic Wand can also do math for you. For instance, you can prepare an invoice showing the individual prices of each item, and have Magic Wand add them up for you.

I don't have any accounting software to prepare invoices. Instead, I prepared a blank form called ORDER, and fill it out using Magic Wand. Each order has a number; so "A>edit order 123" creates a new order #123; and "A>edit 123" lets me edit an existing order. I wrote a file named PRICE that has all the items for sale and their prices. Each item looks like this:

```
^WHM01
    1   WHM01 Write-Hand-Man, H37 format      49.95
\SET #DOLLARS=#DOLLARS+49, SET #CENTS=#CENTS+95\
\IF CENTS>2,  SET #DOLLARS=#DOLLARS+1,  SET  #CENTS=
    #CENTS-100
```

"WHM01" is the part number of the product. The first line has a page eject followed by the part number, so Magic Wand's "include" command can find it. The second line is the one that actually prints on the invoice. The third adds the dollar amount (49) and cents (95) to the total dollars and cents respectively (Magic Wand doesn't do decimal arithmetic). The last line checks for a carry over 99 cents. If the number of digits in cents goes over 2, add the carry to the dollars.

Now if a customer orders Write-Hand-Man, I include it in his invoice like this:

```
Hit ESC     (to return to command mode)
    Iprice  (include from the PRICE list file...)
    I@whm01 (... starting at part #WHM01)
```

Repeat for any other items. At the end, print the total as the value of #DOLLARS, a ".", and the #CENTS.

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QUESTIONS and ANSWERS

Q -- How would you do floating-point calculations at the 8-bit level? [From last issue's **Q minus A** column. -Ed.]

A -- "When I first attempted to incorporate floating point mathematics into a machine language program I was writing, I was amazed at the complexity of the subject. The quickly led to a search of the computer book stores for a book on the subject. After several false stars, I finally came across the **Z80 Software Gourmet Guide and Cookbook** by Nat Wadsworth (published in 1979 by Hayden Book Co...). I purchased the book because it contained a full set of floating point subroutines for performing the four basic mathematical operation[s]... But even more important, it contained the subroutines necessary to convert decimal numbers to and from floating point." - From Richard Kiessel, Germantown, MD.

Q -- What changes need to be made when converting an HDOS assembly language program to CP/M -- and vice versa? [Continued from the last issue. -Ed.]

A -- "The process described [there] for HDOS to

CP/M works in the opposite direction as well. I have programs which disassemble and convert HEX to source code that run under CP/M. There is also a CP/M to HDOS transfer utility called CTOH which I have seen listed in the Capitol Heath Users Group (CHUG) library. If anyone is interested I could put together a package of all the programs." - From Frank Hutchison, Fairfax, VA.

=====

SET HELP ADDITION FOR UD.DVD
by Bernard L. Waltuck

UD.DVD is an excellent printer driver for HDOS. (Modifications for HDOS 3.0 are available.) HDOS only allows 7 device drivers at a time. On initial boot, the disk directory is scanned for device drivers (??.DVD) and their locations are stored for future reference. If you reset the boot drive before you load any of the drivers you must reboot before the non-loaded drivers can be used, even if you go back to the original boot disk. Any attempt to access a file through an unloaded driver will give you a "disk I/O error" even if you are directing output to LP:. This is the same error you see if you attempt to write to an unmounted disk drive or to a write protected file. (You can load DK: and mount a disk later if you wish.) But I digress...

With UD.DVD, you can access eight different printers at eight different ports, one printer with eight different protocols, or any combination, all with just one driver. In addition it allows you to send a string of up to 16 ASCII characters to the printer to automatically change pitch, line spacing, margins, font, or anything else your printer can do. The only drawback is that with the "SET LP: HELP" command you can only see **if** an ASCII string will be sent but not what it is (see Figure 1). To see the string you must ask one device at a time with "SET LPn: ASC ?". To compensate for that, I wrote the enclosed program in MBASIC 4.82. I haven't tried it with B.H. BASIC. But because it requires the use of "random" access files it may take some modification. (Don't let that frighten you from trying it.)

I use my Okidata 92 to set the margins rather than let the device driver do it, because when I underline, the margins fill with the underline where the driver prints spaces. Figure 2 is a sample run of that hardcopy or disk file.

For those of you who have asked for help on learning to use your H8/89 systems I have included my thoughts on why I wrote it this way: first I used single statement lines for clarity only. Multiple statement lines take up less memory and can increase your disk storage space. Here MBASIC also has an advantage over B.H.BASIC in that MBASIC is easier to edit and therefore debug, especially when multiple statement lines are used.

LINE 10: This line is required in MBASIC versions before 5.0 to free up space for string variables whenever more than a token few are used.

LINE 20: Device drivers are .ABS files without predictable commas or LF characters. For this reason simple INPUT or LINE INPUT commands are of no use, therefore the "RANDOM I/O" mode must be used. This also requires, that the file not be write protected.

LINE 30: This version of MBASIC does not support LPRINT (or LLIST) so that any output to a printer must be through a device driver, either LP: or any other printer driver. Just name your own.

LINE 40: As long as we have the mechanism in place it is easy to also send it to a disk file kept on the same disk as LP.DVD and change it whenever you "SET" LP:. Note if LP.DVD is not on your working disk, just insert SY1: (DK2:, or whatever) in lines 20 and 40 before you RUN.

LINE 50-60: Versions below 5.0 access files in fixed records of 256 bytes each. The first record is record 1, not 0. We want to look at 128 bytes of the 13th record starting at byte 91. When we set up fields for the record to go to, we will IGnore the 90 bytes of IG$, and the last 38 bytes of JUnk as JU$, but we only will look at the 128 bytes of TExt in TE$.

LINE 70: We did not need to DIM the variable with under 10 members in MBASIC but you do in B.H.BASIC. Starting a FOR-NEXT loop with 0 saves space.

LINE 80: Separate each ASCII string for the eight different "printers".

LINE 90: Set up the label for each line. If you were to just PRINT X you would get a leading space before the number. So I easily form the character by adding 48 (decimal) to each X to get the ASCII representative, then insert the CHR$().

LINE 100-110: Start the nested loop to examine each character in the line.

LINE 120-150: Look at the ASCII equivalent and check: is it "00", if so go to the next character; is it printable (>30), if so, go on; but if not we must print something. So we use the conventions of "control" characters. See that <CTRL> key on the left of the keyboard? That key strips the 5th bit of the printable characters ASCII "@" (64d) through "_" (95d). This includes the capital letters and several other characters and are then represented by the ^ symbol printed before the character. For example, "C" is 0010011b (67d), "^C" is 00000011b (3d), "ESC" is "^[", etc. So this section inserts the "^" and adds 64 to make the character visible. Be sure not to jump out of a loop, it is bad programming.

LINE 170-180: Builds the line and inserts a space between characters for clarity.

LINE 190-210: Print that line on the screen and continue the outside loop for the next line.

LINE 220: Line inputs allow you to accept default answers with null strings as well as accepting letters. I hate "1 for yes, 0 for no" (no class).

LINE 230: Be ready to output to the printer opened on channel 2.

LINE 240-260: If the answer was the default (NO) see if there is anything more. If there was a response, convert to upper case by mapping out the 6th bit. If "Y" then proceed, otherwise skip ahead.

LINE 270-320 **FROSTING**: Look at the system date set up on BOOT (when it asks for the date). This routine puts the date at the top of the file either printed or saved to the disk so you know how recent the data is (as long as you change the date periodically). It also strips the leading 0 from the day when the day is a single digit number.

LINE 330-350: Print the information to the disk or the printer as you see fit, depending on K.

LINE 360: HDOS does not send a partially filled

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How to use this index:

As an example, in a fictitious entry: "Gadgets, #2 3a,4d; #9 7,Isrt", references to "gadgets" would be found in Issue #2 on pages 3 and 4, and in Issue #9 on page 7 and also in #9's Insert.

Notice that Issue Numbers always have a # sign before them. All other numbers are Page Numbers. A lowercase letter (a thru d) right after a Page Number shows you the area of the page to look at:

FIRST column: a = TOP half, b = BOTTOM half
SECOND column: c = TOP half, d = BOTTOM half

Where there is no lowercase letter, the location is obvious or there is more than 1 occurrence on the page. For longer subjects the letters show only **starting** locations.

"Isrt" is used for "Insert". When you see "Isrt", reference(s) to the subject will be found in the Insert to the given Issue Number.

Many of the entries are cross-indexed, so if you don't see what you're looking for, try another word.

* *

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- W -

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* * *

buffer until the file is closed.

LINE 370: If you have done your last thing, clean up and go home.

LINE 380-410: If you had only saved to the printer this is your chance to save to the disk. Remember HDOS does not care what the driver drives. All output is handled the same way. You can later "TYPE" or "PIP" the file to the TT: or to a printer at any time you wish.

LINE 420-430: Close any open files especially LP.DVD and end.

LINE 440: I put the name of my program somewhere in every file so all I have to do is list it and I will know under what name to save it in case I have similar files with similar functions. It also tells me the date I did it so that I can compare backup copies with the latest version.

In principal, any Device Driver can be inspected this way. You just need to know where to look! Compare two copies of the drivers with one parameter set differently and you "only" have to decode the difference.

FIGURE 1:
(Truncated on the right -Ed.)

```
> SET LP: HELP

Set Option Status    #     UD>DVD - Universal Device

Form        Feature          LP0:  LP1:  LP2:  LP3:

PORT n      Port Address....340Q..340Q..340Q..340Q.
BAUD n      Baud Rate.......9600..9600..9600..9600.
WIDTH n     Characters/Line..080...080...080...080.
FORM n      Lines/Form.......066...066...066...066.
PAGE n      Lines/Page.......060...060...060...060.
MARGIN n    Set Left Margin..000...000...000...000.
MLC N or Y  Map Lower Case....NO....NO....NO....NO.
MUC N or Y  Multiple Copies...NO...YES....NO....NO.
PAG N or Y  Pagination.........NO....NO....NO....NO.
PFF N or Y  Pseudo Form-Feed..NO....NO....NO....NO.
FFF N or Y  Final Form-Feed...NO....NO....NO....NO.
XXH N or Y  XON/XOFF..........NO....NO....NO....NO.
DSR N or Y  Data Set Ready...YES...YES...YES...YES.
IVD N or Y Inverse DSR......YES...YES...YES...YES.
CTS N or Y  Clear To Send.....NO....NO....NO....NO.
IVC N or Y  Inverse CTS......YES...YES...YES...YES.
ASC N OR Y..AscII String.....YES...YES...YES...YES.
```

FIGURE 2.

```
10-Apr-88
LP0: ^[ 0
LP1: ^[ 1
LP2: ^[ 0 ^\
LP3: ^[ 0 ^]
LP4: ^[ 0 ^_
LP5:
LP6: ^X ^[ % C 1 2 0
LP7: ^X ^[ 1 ^[ % C 1 2 0
```

LISTING

```
10 CLEAR 10000
20 OPEN "R",#1,"LP.DVD"
30 OPEN "O",#2,"LP:"
40 OPEN "O",#3,"PRINTER.DAT"
50 FIELD#1,90 AS IG$,128 AS TE$,38 AS JU$
60 GET #1,13
70 FOR X=0 TO 7
80 M$=MID$(TE$,(X*16+1),16)
90 L$(X)="LP"+CHR$(X+48)+":"
100 FOR Y=0 TO 15
110 R$=MID$(M$,Y+1,1)
120 R=ASC(R$)
130 IF R=0 GOTO 180
140 IF R>31 GOTO 170
150 R=R + 64
160 R$="^"+CHR$(R)
170 L$(X)=L$(X)+" "+R$
180 NEXT Y
190 PRINT L$(X)
200 NEXT X
210 PRINT
220 LINE INPUT "DO YOU WANT A HARDCOPY? <N>";Z$
230 K=2
240 IF Z$="" THEN Z$="N"
250 Z$=CHR$(ASC(Z$) AND 95)
260 IF Z$<>"Y" GOTO 360
270 FOR X=0 TO 8
280 D$=CHR$(PEEK(8383+X))
290 IF D$="0" THEN IF X=0 GOTO 310
300 PRINT #K,D$;
310 NEXT X
320 PRINT #K,
330 FOR X=0 TO 7
340 PRINT #K,L$(X)
350 NEXT X
360 CLOSE #K
370 IF K=3 GOTO 430
380 PRINT
390 LINE INPUT "DO YOU WANT TO SAVE THIS ON THE DISK
    AS 'PRINTER.DAT'? <N>";Z$
400 K=3
410 GOTO 240
420 CLOSE
430 END
440 REM *** READLP.BAS  3/1/88
                        =====
```

VENDOR.UPDATE

Toolworks. I've been in recent contact with some of the those who serve our community. One of these was Lisa Beth Dickinson, Public Relations, of long-time vendor:

The Software Toolworks / One Toolworks Plaza / 13557 Ventura Boulevard / Sherman Oaks, CA 91423 / 818-907-6789

The product summary Lisa sent dated to the spring of '87(!) and included a good number of the old standbys, such as Toolworks C and LISP/80, MYSPELL, MYCALC, TEXT, SUPER ZAP, AUTODIFF, and ADVENTURE. Notably absent was the PIE editor and **anything** for HDOS; everything was for CP/M or MSDOS! I've enquired further about remaining HDOS stocks, but have not received a reply thus far. So if you should need something under HDOS, enquire. I ordered and received Toolworks C and MATHPAK for HDOS about a year ago, so there still **may** be some stock available.

One of the things I asked directly of Walt Bilofsky, Software Toolworks' founder, was the possibility of his placing his 8-bit holdings in the public domain. He replied:

"I regret that we can't assist you in your effort to move H8/H89 software into the public domain. We are a commercial software house, and are selling small quantities of the H8/H89 software, as well as substantial amounts of similarly-named software products on newer machines.
"We can't allow the public to receive any impression that would contradict the fact that The Software Toolworks' products are copyrighted material and that copying or distributing them in an unauthorized manner is against the law."

Though certainly inconvenient for us "staunch" 8-bitters, I respect Walt's decision. See further below and this issue's letters column for more on this topic.

Software Wizardry. About the same time I wrote to Walt, I also enquired of Tom Jorgenson, the power behind Software Wizardry and First Capitol Computers. In answer to the same question I posed to Walt, Tom replied:

"...we have discussed doing precisely this in the past ourselves, however, we have concluded that it is not in our best interest to do so. You see, we have had a major problem already with use of our products illegally, and in one instance, one of our products found its way onto a BBS system (which almost necessitated a lawsuit ...) ... We reached the conclusion that release of some of our products into the public domain would create confusion on the part of the end-users as to which products were, and weren't, public domain."

Tom noted further that in lieu of p.d. release, he would release source code (if OK'd by the authors) to registered owners. And he concluded, "It's unfortunate that a relatively ... small number of people cause grief for everyone - but they do." As with Software Toolworks, I respect Tom's decision.

If interested in the Wizardry's products, mostly for HDOS, write Tom at First Capitol Computer / #16 Algana Drive / St. Peters, MO 63376-3930, or call 314-447-8697.

Spite Software. I mentioned way back in issue #7 that I asked for information about this company's CP/M product line. Its spring catalog took over four months to arrive! Its software includes a flight simulator (using ASCII characters to generate the instrument panel); like Elliam Assoc. and KaftorWare (mentioned here last issue), it carries the "Magic-Series" laser printer package; a print spooler; database packages; an outline processor; a single-entry financial package; WordStar utilities; and third-party material from Software Toolworks and Spectre Technologies. To receive one, write to:

Spite Software / 4004 SW Barbur Blvd. / Portland, OR 97201

Technical help can be had at 503-228-8223. **But you'd better move fast!** I received a flyer in mid-December advertising a 90%-off sale!

This sale includes 12 packages, ranging in price from $39.95 to $114.95, at a bundled cost of $69.95 plus shipping! Included are that flight simulator, outline processor, print spooler, a host of utilities for WordStar, a sort program, a loan calculator, and an NFL game forecaster. But formats are limited to Apple, Osborne, Kaypro, and 8-inch, unless you include a $25 download fee. I sent a cashiers check for $75 between Christmas and New Years and received the package UPS Second-Day Air right after the holidays. (I haven't had much chance to go through the stuff yet!) But Spite **will** take plastic money at 800-237-9111. Ask for the "CP/M Survival Kit."

And do it now; some of the items are in short supply. Moreover, if you can't read any of the formats listed, order Kaypro and I'll do the transfer for you for $10 plus the cost of the disks, unless you send some. If you're running standard hard-sector or single-sided soft-, 15 disks should cover it. Halve that for double-sided soft-; of course, I'll return any unused disks.

Electronic Services. Besides the vendors above, I also touched bases with a pair of BBS servies. One was via a call from Joseph Katz, writer for **REMark** and **Sextant**, educator, and now sysop of the Zenith Users' Forum on CompuServe. Joe is urging participation by HDOS and CP/M users and I concur with Lenny Geisler's remarks on that score in the December **SEBHC Journal**; you should consider it. I also received a call from independent sysop and reader Robert Cooper. He operates ZNOTE89, for Z-System users, at 805-949-6404. Give him a jingle at 300/1200/2400 baud.

=====

DISK DRIVE PREVENTATIVE MAINTENANCE

by Dan Jerome in Collaboration with Kirk Thompson

If you have a disk drive that is giving you problems, don't get rid of it before you determine whether you are capable of performing home repairs. Sometimes just a little "field maintenance" provided by the owner can save money, time, and convenience. Non-functional used drives are not in good demand and are a drag on the market. To purchase a good replacement drive is rather expensive. Quikdata offers reconditioned Tandon double-sided 40 and 80 track drives for around $100.00, and that's a good price.

Information is presented herein that will encourage you to attempt preventative maintenance on your problem drives at home and save you money. Following is a brief list of some of the typical problems that appear with disk drives.

[1] BROKEN OR CRACKED HUB. After several months of use, some drives develop a cracked or broken hub. A broken or damaged hub will not engage a disk. If you are having problems trying to load disks, this is a likely problem.

To check it out, open the drive door and look inside. Try rotating the white, nylon hub with an ordinary wood lead pencil, using the eraser end. If

the hub is cracked, you probably will be able to see it. Most people with some mechanical assembly experience can replace the hub. Parts are available from Quikdata for Tandon drives, or Floppy Disk Computer Services for Siemens drives. If you own drives manufactured by other companies, visit your local public library and look at the ads in computer magazines. When you find a company which is selling the type of drive you are using, jot down their name and address and write them a letter to inquire whether parts are available on a one-each basis.

Sometimes drive manufacturers sell out to a larger company. If you have any Shugart drives, for example, they will now be listed under Panasonic.

To disassemble the drive mechanism and get at the hub, first remove the four attaching screws holding the drive circuit card, and disconnect any connectors that may be plugged in toward the front of the card or along the sides. Then swing the card backward, allowing the rear connectors to remain in place. Then take an ordinary snap ring pliers and remove the hub clip that is located inside. You can also use a flat bladed screwdriver, but unless you are very careful, you may score the plate below.

The ring clip is part of an axle assembly which includes a spring and an axle. The parts only go in one direction. Once the ring clip is removed, carefully remove the spring, and then slip the hub off the axle. Discard the defective hub and install the new one. Reassembly is essentially the reverse of disassembly. Sometimes it helps to keep things straight if you prepare an "exploded" drawing showing the relationship of the parts. This may become invaluable during the reassembly process.

[2] PROGRAMMING SOCKET FLAKY. You change the drive configuration on your system or purchase a used drive from a friend. After the drive has been programmed, and the terminator resistor added, if necessary, the drive gives you problems. It will not respond to your keyboard commands, or it responds intermittently and then gives you errors. You double check the entire drive setup, but find no errors. The drive continues to be a problem.

The problem may be a worn programming socket. The programming plug socket is located on the logic circuit card assembly. On a Siemens full-size drive, the programming socket is located in the top left segment of the circuit card. Siemens calls out the designating circuits on the board, so it is easy to locate. Upon inspection, you note that the programming socket is made from very light duty material. If you ever tried using a dip switch or jumper wire to program the drive, or if you have replaced the programming plug several times during a period of months or years by plugging and replugging it into the socket, the female terminals of the programming socket may become excessively worn. Sometimes they separate to the point where they provide either intermittent contact or no contact at all. This could well make an otherwise good drive appear to be defective. Therefore, NEVER INSERT LEADWIRE, PAPER CLIPS, OR ANY OTHER FOREIGN MATERIAL INTO THE DISK DRIVE PROGRAM SOCKET, AS THIS WILL LEAD TO TROUBLE LATER ON.

REPAIR TECHNIQUE. The following information applies to full-size drives, either single sided, or double sided, either 40 or 80 track. It does not apply to the newer half-height drives, since the drive designation system is different.

If the programming socket has become worn, the cure for this problem is to replace, or jumper, the programming plug socket. Essentially the part in question is a 14- or 16-pin integrated circuit socket. These sockets are very inexpensive and may be secured from a source such as JRT Microdevices or the equivalent.

Most people don't have spare parts like this available at home. Until you can acquire the needed part, you will probably be able to use the drive IMMEDIATELY by jumpering the appropriate socket terminals in accordance with the following steps:

(A) Using a black felt tip pin, mark the connectors on the drive circuit card assembly, using a system of "1," "2," "3," etc., or the equivalent. At the front of the drive circuit card there may be one connector. If applicable, mark this connector "F" for ease of identification.
(B) Remove the connectors and lay them back to provide easy access to the drive circuit card. They may appear stuck together, but a persistent and careful force will separate them with just a little effort.
(C) Unscrew the four attaching screws that hold the circuit card to the drive assembly.
(D) Carefully remove the circuit card assembly and lay it component side down on a soft cloth on your work table.
(E) Locate the drive programming socket on the solder side of the board. Having already determined which designation you want to give the drive, e.g. SY0:, SY1:, C:, D:, etc., mark the appropriate pins using the felt tip pen. Remember that the positions are in sequence as follows: HS, DS0, DS1, DS2, DS3, MX, SPARE, and HM. On my 80-track Tandon drive, it was easy to miss the HS position due to card clutter at that spot.
(F) Using a low wattage soldering iron, and about AWG 22 gauge solid leadwire, solder two jumpers: one across the HS pins and one at the appropriate DS pins. Ignore all other pins.
(G) Using an ohmmeter, check the soldered terminals. The result should be zero ohms. If you go on to measure adjacent terminals, they should measure infinity, unless they are tied in with an associated circuit. The purpose of this is to help you do a validity check on your soldering work before you reassemble the drive.

NOTE: After you have ordered the replacement socket and the parts come in, and you wish to restore the drive to factory specs, first test the new socket to see if it is suitable. Insert your drive programming plug into the new socket and see if it seats correctly. This problem happened to me with an 80-track Tandon, and when I went into my workroom to pick out an integrated circuit socket, the first one did not fit the plug. It was made by TI. Fortunately, I had an alternate socket made by another manufacturer.

(H) Unless you are sure that you will be using the repaired drive in that one designated position, you should plan to replace the defective socket. To do this, first unsolder the jumpers that you installed earlier. Then, using COPPER BRAID, unsolder the old programming socket and clear the holes on the drive

circuit card. Then simply replace the old socket with the new one and carefully resolder.

[3] PERIODIC DRIVE LUBRICATION AND CLEANING. The following information is adapted from an article in **Microcomputing** magazine, dated December 1982, written by Kirk L. Thompson, and titled "Rx FOR YOUR DISK DRIVE ILLS". If major surgery is not necessary for your disk drives, you may at least want to consider a regular schedule of maintenance to insure continued drive reliability.

(A) IRRIGATE THE WORM. (The following information applies to Siemens 90k single-sided drives, simply because in our experience this type of drive is the most popular of all 90k drives used in the field. It does not apply to double-sided Siemens or Tandon drives, since the read/write head positioner of these drives is entirely different. Under normal conditions, it is not necessary to lubricate double-sided disk drives.)

It is necessary to lubricate the worm gear on a Siemens 90k drive, because Siemens uses a graphite lubricant on the gear that gums up. The proper type of lubricant to use is Teflon-based, such as DOW-200, BREAK-FREE, or SP-60. If these lubricants are not available in your city, check a Coast-to-Coast Hardware store for "Tri-Flow Lubricant." This is a light, oil-based lubricant to which teflon has been added and costs approximately $2.00 for a 2 ounce can. This product is manufactured by Thompson and Fambry Inc., Memphis, TN 38117. Teflon is a trademark of the DuPont Company.

To clean and lubricate your drive, proceed according to the following steps:

1. Dismount the drive from its enclosure and lay it on your work surface with the large circuit board (logic board) facing up.
2. Disconnect the five-conductor socket connector on the side of the board, remove the four mounting screws, and fold the circuit board back.
3. Soak a foam-type swab intended for video recorders (such as Radio Shack Lintless Foam Swabs, part number 44-1094, cost: $1.95 for a package of 10) with isopropyl alcohol and clean the exposed ends of the worm gear. CAUTION: Do not use a standard Q-tip, since the cotton has a habit of coming off and remaining on the worm gear. This could cause further problems later on if you didn't catch all of the tiny cotton patches left behind.
4. Notice that the head carriage assembly is mounted on the worm gear. Firmly grasp the head carriage and carefully move it forward along the worm gear to clean otherwise inaccessible parts of the gear.
5. When this operation is complete, discard the swab.
6. Using a good grade of Teflon lubricant such as DOW-200, BREAK-FREE, or SP-60, apply the chemical to the worm gear. Also add it to the sliding track used by the head carriage assembly. You can either spray it on carefully, or use a clean swab as a transfer medium. NOTE: Use small amounts of the lubricant, and slide a finger or the swab over the gear teeth to distribute the lubricant smoothly.
7. Then move the head carriage assembly back and forth to insure smooth travel of the head carriage assembly. CAUTION: It is important to insure that when you are done the head carriage assembly is positioned as far toward the rear of the disk drive as the built-in stop will allow.

CAUTION. Do not substitute the type of oil. Teflon based oil dries but remains viable. Other types of oil stay moist and attract dust and dirt particles, which will affect disk drive efficiency, and may cause undesirable problems.

(B) CLEAN THE HEAD(S). The following applies to all types of disk drives. CAUTION: DO NOT TOUCH THE DRIVE HEADS WITH YOUR FINGERS!

It is the consensus of many of us "old timers" that disk drive heads should be cleaned approximately every six months. It is not necesssary to purchase expensive drive cleaning kits, since the process of cleaning drive heads is quite easy and straightforward.

To clean drive heads, dip a cotton-tipped Q-tip [or VCR swab --Ed.] in isopropyl alcohol, a good grade of tape head cleaner, or VCR head cleaner. Then swab out the entire head area including the pressure pads. (I, personally, prefer to use video or tape head cleaner. Use a product like Rawn Video Tape and Head Cleaner, part number 11007, or the equivalent. The Rawn product is safe for plastic, rubber, painted surfaces, and elastomeric parts. It meets commercial standard 237A, and is guaranteed not to leave a residue. --Dan)

(C) When you have finished lubricating and cleaning your drive, reassemble the drive and replace it in its cabinet, unless you wish to proceed to running the drive tests following. In this case, the drives must be exposed so that the drive speed test may be performed.

(Concluded next issue. -Ed.)

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