Saving Our HEATH Eight-Bit Machines!

SEBHC JOURNAL

Volume 1, Number 2 $2.50 a copy, $12.50 a year September, 1986

* Editorial Policy *

We carry advertisements free of charge for any vendor who continues supporting all H/Z 8-bit machines. We also solicit compliments and complaints from our subscribers (Heath/Zenith computer users) about vendors' products and services--or lack thereof. In all cases comments must be explicit and detailed. We will publish any vendor's response in the next issue after receiving it. Honesty is vital! N.B.--We carry subscribers want ads free of charge. Please send us your ad between the first and 10th of the month and we'll print it in the same month's issue. Please limit want ads to 250 =< words. NOTE: If you submit an article to us which we subsequentally publish we will either extend your present subscription by a year, or will give you a free one if you are not yet a subscriber. Also you automatically will become a full Society member for that same year.

EDITORIAL

We've received a number of very interesting letters from subscribers and others verifying our belief that we're on the right course, serving the best interests of you Eight-Bit H/Z users. Unlike other computer publications, we shall continue keeping readers well-informed about the Eight-Bit H/Z not-yet-dead-machines. And we shall never deviate from our aim.

We strongly recommend that all Eight-Bit H/Z users write Heath and Zenith and urge them to re-introduce both kit and assembled '89s! In our opinion, the H/Z-89 is too good a machine to abandon simply because it works so reliably, and has so much "second source" support and so many well-satisfied users. Trashing the H/Z-89 was most ill-advised; your writing in as we suggest may possibly resurrect our treasured machines. (Remember what happened to a certain soft drink?!)

This month we're pleased to bring you a quite excellent, thoroughgoing technical article by Lee Hart on how to use H/Z-19 graphics without Ed-A-Sketch. We are sure you'll like it and find it very useful.

Help Save The HEATH Eight-Bit Machines!

LETTERS

"Dear Mr. Geisler:

Thank you for sending a copy of your Journal and the free ad offer...

As you may know, we have exhibited at a number of Heath/Zenith Conferences. The last two were in St. Louis and the International event in Chicago. At these events, the entire FILEBASE™ package was being sold at $89.95.

Although the ad officially says $125, we are willing to continue the show price of $89.95 to those who identify that they read [about] it in the SEBHC Journal.

Sincerely,
Barbara Markowitz, Vice President
EWDP Software, Inc."

[You're quite welcome! Ad is on page 19. We had to reduce it to fit our page size, but it's all there. - ed.]

"Dear Mr. Geisler:

Thank you for your invitation to advertise in the ***SEBHC Journal***...

We are enthused about your venture. We support H-89's both out of practicality and necessity: we use four of them in our business, and we are adding more as required. As a developer of custom software and publishers of educational materials, we are interested in any ideas your readers may have for new products.

Thanks again for your generous offer. I am looking forward to seeing our ad in your next issue.

Sincerely,
Richard A. Stanley, Vice President
Wheeler Associates, Ltd."

[Thanks for the kind words; your ad is on page 17 - ed.]

"Dear Lenny,

I really enjoyed reading your first issue of ***SEBHC JOURNAL***. I found myself grinning & nodding in agreement often. A breath of fresh air in an otherwise 'stuffy shirt' computer environment was just what I needed.

...A cheque for a subscription to the Journal will follow shortly. Look[ing] forward to the the next issue. Good Luck...

Sincerely,
J.R. Sondberg, President
SUNSOFT"

[A "breath of fresh air" is what we all need! Subscription blanks on pages 24, 25. See ad on page 16 -- ed.]

"Dear Len,

Loved the first issue! Find ad copy enclosed. Reduce/enlarge as you wish. Thanx!"

"Brad
MAGNOLIA MICROSYSTEMS"

[U R Welcum! Ad on page 7; now some sour grapes -- ed.]

"Dear Len,

I read your latest newsletter [Vol 1, #1] and have to straighten something out with you. That is, your statement: 'Hence the emergence of an 8-bit newsletter to take up where REMark, Sextant Publishing and H-SCOOP have really fumbled the ball'.

I need to comment on this. Keep in mind that H-SCOOP started out as 'H8-SCOOP', a newsletter supporting only the H-8 computer, since in those days that's all there was. We eventually broadened to cover the software-compatible [sic] H-89. With much resistance we finally decided, since it was made by Heath, to cover the Z-100, and finally their PCs. Why? To stay in business!

As newer H/Z computers came out, more people were purchasing them, often to complement their H-8s and H-89s. Our subscriptions dropped when we said we would not cover the H-100s and PCs, so, we picked them up--to stay in business and continue our usual total-support image. [But] by then H-8 & H-89 information was already slowing down, and naturally, without information and articles, you cannot publish a full newsletter.

H-SCOOP discussed problems and cures for the H-8s and H-89s long before Heath or Zenith even acknowledged that any problems existed! The H-89 power supply is one [good example]. H-SCOOP described the problem and its cure, even as Heath and Zenith were saying no such problem existed. Ironically, the information we published appeared later in other H/Z newsletters and journals. And Zenith later sent [our] fixes to all their service departments and Heath stores [without giving us credit].

The bottom line is that I've always had an open door policy for information exchange. Of course, I can only policy for information exchange. Of course, I can only print what I receive and I've published about all that I could find or write about the 8-bit systems in the past five years or so. But my offer still stands: I'll place something in next month's issue if anyone submits their experiences, problems, bugs, fixes, and reports.

Neither Quikdata or H-SCOOP are dropping any support for 8-bit machines, despite what you said in the [SEBHC Journal]. Please keep in mind that Quikdata and H-SCOOP are quite separate [entities]. Quikdata has been clearing out surplus 8-bit software--items we've sold only one or two of in the last year. It's smart business to clear out the slow movers. [Nobody complains if K-mart drops a line of no-profit merchandise, do they? -- ed.]

I am quite hurt that you even hinted that we are

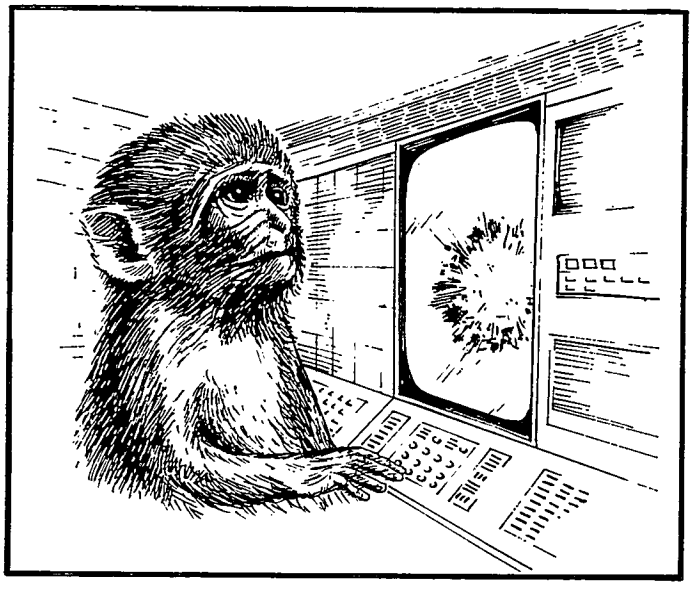
GOTO PAGE 4

MORE &C.!

-- continued from page 3 --
"dropping support of Heath's 8-bit machines. The only thing we've dropped are those items the 8-bit public no longer seems interested in...
Sincerely,
Henry E. Fale
Quikdata Computer Services, Inc."

[Henry, we were terribly upset to find that we'd printed out a rough draft editorial instead of the corrected copy! We know by your letter that you still really care about us eight-bitters. Please accept our most sincere apology for making such a horrible mistake! But in connexion with your remark that there's not much more to be written about H/Z 8-bit computers, see the (H-19) H/Z-89 tutorial starting on page 9 of this issue. Also, we have more "how-2" articles in the works for future issues. The H/Z 8-bit machines ain't dead yet! -- ed.]

+ 8 +



DRAT!!

EARN A FREE 1-yr SUBSCRIPTION!

Get Your Eight-Bit Article Printed in The *JOURNAL* and we'll send you a full year's subscription in return! In addition, we'll make you a full-fledged, "card-carrying" member of the Society of Eight-Bit Heath Computerists for the same period. And for each succeding article you submit and we publish we'll extend your subscription and SEBHC membership for another year. No other H/Z-oriented publication that we read has a similar feature for the benefit of their contributing authors!

What kind of article do we need and want? Here are a few suggestions (or you come up with something better!):

[__] Hardware reviews, fixes or modifications

[__] Programming shortcuts--any language

[__] How-to articles about any non-BASIC language

[__] Short utility program listings (we'll check 'em out before they're printed, so they'd better be right!)

[__] Improvement patches for H/Z operating systems (HDOS and CP/M or ZDOS)

[__] Computer-residence or computer-business equipment linkages intended to make life easier and simpler

[__] Detailed articles about "hidden" or "undocumented" H/Z operating system features you've discovered and made profitable use of

[__] Humorous or serious H/Z-oriented fact or fiction items (including illustrations whenever possible)

[__] Cartoons--there's a limit to how many we can "crib"

[__] Little-known H/Z historical facts and fallacies

[__] Reviews of new software you've bought, etc.

We promise you that we'll read every word you send us and if it is publishable, we'll try to print it in the very next issue following receipt of your submission. To take advantage of this fast editorial service, please send us the text of your article as a straight ASCII file on a 40TRK, SS,SD or DS,SD disc, or upload it onto either the Source or CompuServe as an ASCII text file and we'll download it and take it from there.

If you use the Source, address a message to LEONARD GEISLER, ID: BDY074.

If you use CompuServe, address your message to LEONARD GEISLER, ID: 72345,236.

In either case, leave a message *briefly* describing your article and how to find and download it from your personal file space. Please DO NOT SEND "BIN" files! My H-8 computer and modem software haven't yet learned how to handle such an esoteric code form!

$49 MasterCom

FOR TELECOMMUNICATIONS

MasterCom is a full featured, smart terminal and file transfer utility for Morrow and other CP/M computers and all IBM PC-DOS compatible computers. It is easy to use for the beginner, yet has the features and speed for the advanced user. No long training is required. You will be communicating immediately using the descriptive pull down menus.

We are so enthusiastic about MasterCom that we provide a 30 day money back guarantee. If you don't like it, return it!

MasterCom can:

- Make your system a terminal to a HOST bulletin board or time sharing system (such as Dow Jones, Compuserv, WestLaw, etc.).
- Capture data onto your disk and/or printer from the HOST.
- Send text and program files to almost any type of computer.
- Exchange any type of file using error correcting protocol with another **MasterCom** or Xmodem Protocol equipped computer.

MasterCom includes the following features: auto-dial, auto-answer, host mode unattended operation, directory display, batch transfer, file viewing, file rename, file erase, wild card file specification, stored responses invoked by a single key stroke, filter or ASCII display option for received control characters, on-line selection and revision of communication parameters. **MasterCom** supports most file transfer protocols, including Christensen XModem, Xon/Xoff, line at a time (time delay or handshake) and speed throttle.

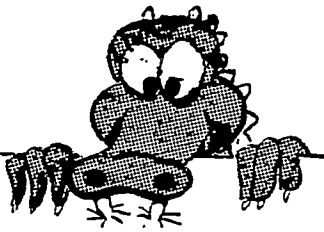
MasterCom is available in most disk formats. A single user license is $49. COD, prepaid, MasterCard, Visa and authorized purchase orders accepted. U.S. orders are shipped UPS surface ($5) or UPS air ($7). International orders shipped airmail ($10). Same day shipment on most orders. Call our software HOT LINE:

906/228-7622

The Software Store

706 Chippewa Square

Marquette MI 49855



Up To Your Ears In Alligators?

You're headlong into the computer age, but the last time you saw your desk top was August 1984. Somewhere beneath that pile of papers, reports, magazines and printouts lies a calculator, the telephone directory, your calendar, and a notepad telling you what you should have done last week.

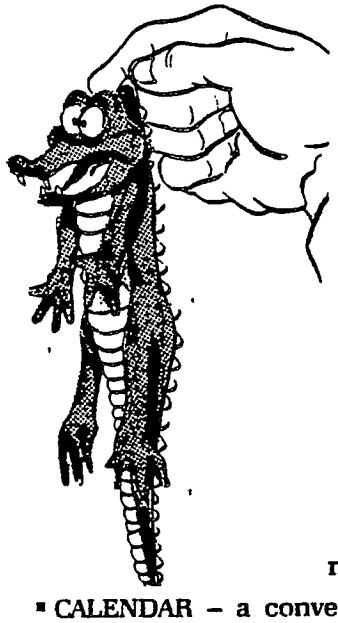
Pack up your desktop clutter, and be the organized individual you always knew you were. Put Write-Hand-Man to work with your CP/M system today, and leave the alligators in the swamp where they belong.

...turn page for HELP...

Clear The Swamp With Write-Hand-Man.™

Write-Hand-Man brings the power of Sidekick™ to your CP/M™ 2.2 or 3.0 system. Check your notes, appointment calendar, even make a phone call with the push of a single key. All without ever having to leave Wordstar™, dBase™, Multiplan™ or any other CP/M application.

- NOTEPAD – the place to put notes to yourself, reminders or whatever you want. Also offers "cut and paste" functions allowing you to move text from NOTEPAD into text files or any application you choose. It's as large as you want, so you won't run out of room.



- PHONEBOOK – look up your most frequently called numbers. It even offers auto-dialing using your Hayes-compatible modem.
- CALENDAR – a convenient 14-day calendar. What time was Tuesday's appointment? Check it on CALENDAR, then go back to the program you were working on.
- VIEW – lets you look at your files when the need arises. Locate the file, then display it.
- CALCULATOR – typing a proposal? Need a cost estimate? Switch to CALCULATOR. A four function (add-sub-mult-div) calculator for decimal numbers up to 14 digits.
- KEYS – allows you to actually define 8 keys on your keyboard to do whatever you like. Use it for repetitive procedures such as editor commands, data entry, or any frequently used number or phrase.

TMS

Write-Hand-Man.

Just $49.95

Technical Micro Systems Inc.

366 Cloverdale, P.O. Box 7227, Ann Arbor, MI 48107

PROGRAM MAP for Microsoft BASIC

PROGRAM MAP produces alphabetical lists of a program's variables, commands & functions, line numbers referenced and constants. It is fast and easy to use and runs directly under CP/M.

PROGRAM MAP helps you accurately 'debug', modify, convert and/or document Microsoft BASIC programs in a minimum amount of time. A single CPU license is available for $150.

if you use CP/M® then you need DISK FIX!

DISK FIX is a disk editor which can display, edit or copy any sector of a CP/M floppy and/or hard disk. The DISK FIX utility can be used to recover files from disks with damaged directories, to reconstruct files with bad sectors, to restore erased files and to do general disk editing.

DISK FIX automatically configures to floppy and hard disks, just insert the program disk and it is ready to run. A single CPU license is available for $150.

REDUCE SOFTWARE DEVELOPMENT TIME BY 90%!

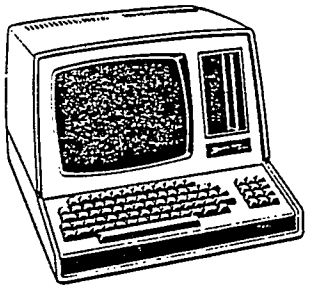
INFO-80 provides building blocks for file definition, data entry & editing, file sorting & merging, record access & selection, report & letter writing, file format conversion and menu job control. You can include your own custom programs written in any CP/M based language.

Each building block includes: (1) an interactive task definition program, (2) a documentation program, and (3) a task execution program. INFO-80 requires a CP/M based computer with at least 500K of disk storage and Microsoft BASIC. A single CPU license is $395.

Call our software HOT LINE
906/228-7622.

The Software Store

706 Chippewa Square • Marquette MI 49855



POPULAR Z89 PRODUCTS REDUCED UP TO 40%!

Take advantage of these reduced prices to improve the performance of your faithful '89!

XM-311 16K RAM was $75, now only **$50**
Still suffering along with less than 64K of RAM? Now's the time to increase your machine's capacity at an unbeatable price! Additional 16K chip sets to populate your CPU board to 48K are only $15 each with purchase of a RAM board!

XM-316 SOFT-SECTOR CONTROLLER was $395, now only **$295**
Wait too long to get a Z89-37 soft-sector controller? Now you can get ours (which supports both 5" and 8" drives) for the same list price! Includes everything you need: controller, PROMs, 5" and 8" drive cables, and CP/M™ on 5" and 8" media!

XM-318 128K RAM WITH CP/M PLUS™ was $495, now only **$295**
CP/M Plus can improve the performance of your '89 by up to a factor of 5 in disk-I/O intensive applications, such as when using dBASE II. Plus, the memory space available for application programs (TPA) will remain a constant 56-57K. Requires either a Z89-37 or XM-316 soft-sector controller with 2 drives. Magnolia documentation included; Digital Research documentation set $75 extra.

XM-320 SASI-BUS WINCHESTER INTERFACE was $250, now only **$195**
Includes our SASI I/O card with 3 serial ports, new PROMs, CP/M v. 2, and support software for the Xebec 1410 controller. You supply the Winchester, controller, case, power supply, cables, and the labor to assemble and test. Be sure to consider our complete subsystems if you doubt your ability to independently locate and integrate all the appropriate pieces!

WINCHESTER SUBSYSTEMS **10MB** now only **$995; 20MB, $1095 30MB, $1295**
These fully configured and tested subsystems include everything you need to add the Winchester storage that you've always wanted, but thought you couldn't afford. Starting with our XM-320 SASI-bus interface, we add everything else needed: case with power supply, 5" Winchester drive, Xebec 1410 controller, and all necessary cables. We assemble and burn in the hardware, and pre-install our popular CP/M 2 operating system software. All you need to do is install the '320 board and PROMs in your '89, plug in the Winchester, and boot!

DUAL 5" 640K DRIVES were $495, limited quantities now **$395**
Two 80-track (96-tpi) double-sided drives in a case with power supply. Use with either a Heath Z89-37 controller or our XM-316 controller.

REFURBISHED 8" SUBSYSTEMS from only **$395**
Prices vary depending upon number of sides and cosmetic appeal of case. 30-day guarantee. Call for current availability.

Magnolia products are available from independent retailers, or may be ordered direct from:

MAGNOLIA MICROSYSTEMS, INC.
2820 Thorndyke Avenue West
Seattle, WA 98199
(206) 285-7266

MAGNOLIA MICROSYSTEMS

CP/M and CP/M Plus are trademarks of Digital Research, Pacific Grove, CA

REAL *POWER* PROGRAMS

No fancy menus; No flashy graphics.
Just hard working programs that do what you want them to do.

RECHARGE YOUR CP/M COMPUTER WITH THE CompuMagic UTILITY PACKAGE

CompuMagic's put 20 programs into one super CP/M Utility Package.
They're flexible.
They're fast.
They work.

Utility programs aren't sexy, but these programs have a way of making even dull tasks like file copying, renaming, sorting, and even erasing almost exciting. Directory listings, file and directory compare programs, turnkey program starters, screen capture and more. These programs are simple to learn, but powerful. The 20 programs are described in detail in the 50+ pages of documentation. Order the package now and start enjoying your CP/M computer again. Only **$45.**

FIND IT *FAST* WITH SEARCH

CompuMagic's first utility for IBM PC users (for CP/M-80 & CP/M+ also) will find what you're looking for FAST! No need to index; search any text file at any time. SEARCH program or text files for one or more strings. See each match in context; you can see a window of lines or the word processor paragraph around a match. On-line help available at any time. Lots of easy-to-learn wildcards and boolean operators, even I/O redirection. Compatible with most popular word processors. Supports path names in MSDOS too. Documentation has lots of examples. Just **$30.**

30-DAY MONEY-BACK GUARANTEE. All CompuMagic products come with a full, 30-day, money-back guarantee. If anything you buy doesn't work the way you want it to—and we can't make it right—we will refund your money.

NOT COPY-PROTECTED. CompuMagic products are never copy-protected.

ORDER NOW: Send Check or MO (Personal checks accepted) or call with your MC, Visa, or COD order. NO charge for UPS ground shipping. Add $2 for UPS COD and $5 for foreign orders. (MD Res. add 5% tax.) Be sure to specify operating system and disk format.

HEATH HARD-SECTOR AVAILABLE!!

CompuMagic, Inc.™
P.O. Box 437
Severn, MD 21144
(301) 969-8068

GRAPHICS ON THE H89

by Lee Hart

The H89 is quite a performer. It has a nice key layout, and an above average screen with excellent text display capability. But rarely do you see graphics used on the H89. Most programs don't use graphics at all; the few that do just use reverse video for highlighting, or draw a box around a message. So you may have come to the conclusion that using graphics on the H89 is extraordinarily difficult, or that a separate graphics board is required.

Nothing could be further from the truth! The H89 actually has excellent graphics capability (witness programs like Write-Hand-Man and games like Y-Wing). Like most things in micros, the trick is knowing how it's done. All the illustrations in this article were created and printed on a standard H89, with no special software or printers. I'll describe how it's done, and soon you'll be including graphics in your programs and printouts too!

A Little Background...

The H89 is really two (*) two (*) TWO computers in one. One is the Z80-based computer with its 64K of RAM, disk drives, serial ports, etc. that we've all come to love. This is the one that runs your HDOS and CP/M operating systems, word processors, spreadsheets, games, and so on.

But there's a second Z80 in there, too. It has about 8K of memory, a serial port, and a keyboard connected, But more importantly, 2000 bytes of its RAM is visible on the screen. That's right; I'm talking about the terminal logic board, the same one that's used in every H19 terminal.

The terminal logic board (or TLB for short) takes care of everything to do with the keyboard and screen. It constantly watches for a key, and makes the "click" when you hit one. It translates the keys you type into a form palatable to your software; for instance, the "f1" key is translated into the sequence "ESCape S".

The TLB also receives commands from the computer to control the screen. Some are easy, like "display this character, and advance the cursor". Others get quite involved, like positioning the cursor, erasing all or part of a line, moving blocks of text around on the screen, etc. This is where having a separate Z80 really shines. On most micros, the main (and only) CPU must execute a loop that clears 2000 or more bytes of memory, a slow process. On the H89, the main CPU just sends an "ESCape E" and the whole screen is instantly erased. This is why the IBM PC and its ilk are so slow at moving things around on their screen.

None of this is any surprise to programmers; they have known about the virtues of a smart terminal for a long time. There are many excellent programs that put the H19's features to good use for word processing, spreadsheets, games, etc. Virtually every major 8-bit program includes the H19 in their configuration menus. The Z-100 completely emulates the H19 (albeit slowly), and even the IBM PC emulates the H19's ANSI mode via their ANSI.SYS device driver (thanks to Microsoft, who included it with MS-DOS).

It's important to remember that the computer and the TLB are like two separate people sharing the same house. Talking to one is NOT the same as talking to the other. Telling ME you saw me at lunch with my secretary would produce a much different result than telling my wife!

Controlling the TLB

With the H89, the OFF-LINE key determines who you are talking to. With the OFF-LINE key up, you are talking to the computer and the TLB will ignore anything you type. With the OFF-LINE key down, you are talking to the TLB, and the computer will ignore everything.

As an example, run your favorite word processor and get some text on the screen. Now find the white plastic card that came with your computer (the one with the ASCII chart on one side, and the H19 commands on the other). On it we see that "clear display" is an "ESCape E" command.

To test this, push the OFF-LINE key so it locks down; then type the ESC key; then a capital E. The screen will be instantly erased.

But remember we did this off-line. The terminal knows we erased the screen, but the computer (and word processor) don't. Push the OFF-LINE key again so it returns to the up position. Now scroll the text up and down a page. You'll find that no text was lost, or even affected.

This technique is very useful. You've probably used it many time to set the terminal's baud rate, turn the key click off, move the cursor, etc. And we'll use it here to manually enable and disable graphics.

TLB Character Graphics

The TLB displays what are called "character graphics". The normal ASCII code has 95 printable characters, which include all the letters, numbers, and punctuation symbols. But computers like to do things in binary. So Heath made up 33 additional "characters" to round up the total to 128, a nice binary number. The additional characters are the "graphics" symbols.

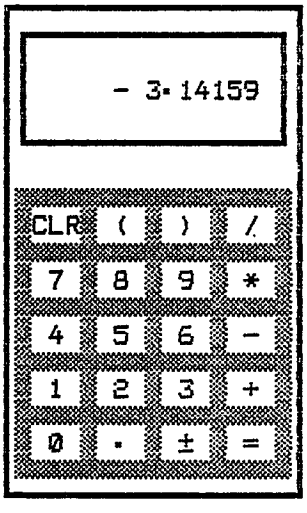
The graphic symbols replace the lowercase alphabet (plus a few more) when the TLB is in the "graphics" mode. They include 3 extra punctuation symbols (division, plus/minus sign, and paragraph), plus a collection of 30 lines, blocks, dots, and area fills. When you include the reverse video version of each, there are 60 unique symbols. They are cleverly chosen so they fit together without gaps to make boxes, fill areas, draw pictures, etc.

The TLB enables the graphic mode when it receives an "ESCape F", and disables graphics with an "ESCape G". This can be on a character-by-character basis. Thus you can mix lowercase text and graphics on the same screen.

Once an ESC F enables graphics, it STAYS enabled until turned off. Every lowercase character that follows will be displayed as a graphics symbol until an ESC G turns graphics off.

In theory, graphics should be easy at this point. All that's necessary is to put an ESC F just before any text that is to appear as graphics, and an ESC G afterwards to return to text mode. But word processors and text editors are very picky. They fight like hell to stop you from putting an ESC character in a file (PIE insists that you preceed the ESC with a control-K). And even if you do embed an ESCape, they will never send it to the terminal (PIE for example displays a reverse-video "[" to show you where the ESC should have been).

I'm sure such programs are trying to save us from ourselves. They just "know" we don't really want to control the way the display looks with the text we are editing. This approach was fashionable when most H89 software was written. Nowdays, the "in" thing is 'WYSIWYG" editors (What You See Is What You Get). But until we get a "whizzywig" editor for the H89, we'll have to take another approach.




```
a) graphics enabled

faaaaaaaaaaaaaaaac
`faaaaaaaaaaaaaac`
``              ``
``    - 3.14159 ``
``              ``
`eaaaaaaaaaaaaaad`
`               `
`iiiiiiiiiiiiiiii`
`iCLRi ( ) i / i`
`iiiiiiiiiiiiiiii`
`i 7 i 8 i 9 i * i`
`iiiiiiiiiiiiiiii`
`i 4 i 5 i 6 i - i`
`iiiiiiiiiiiiiiii`
`i 1 i 2 i 3 i + i`
`iiiiiiiiiiiiiiii`
`i 0 i . i g i = i`
`iiiiiiiiiiiiiiii`
eaaaaaaaaaaaaaaad

b) graphics disabled
```

fig.1 - Picture of a Calculator

As an example, let's create the picture in figure 1. Use your word processor to create a new text file named PICTURE. Referring to the front side of the white card, you'll see that each of the lower-case alphabetic characters has an associated graphics symbol. Let's display these symbols so we can see what they look like.

On the top line, type each of the ASCII characters from "^" thru "~" and the 26 lowercase letters as shown in figure 2. Now go OFF-LINE, type ESC F to enable graphics, and go back ON-LINE. Next, retype the same line again as shown. Aha! This time you get the equivalent graphics symbols. And notice that your text editor doesn't even know the difference.

```
Text Mode:     ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~
Graphics Mode: ◆ ┘ │ ─ ┼ ┐ ┌ └ ├ ± → ▒ ÷ ↓ ▪ ▫ ▬ ▮ ◤ ┬ ┤ ┴ ├ ╳ ╱ ╲ ▔ ▁ ▏ ▕ ¶
```

fig.2 - H19 Graphics Characters

Now let's try the picture. First draw the outside box. The letter "a" forms horizontal lines, the "`" vertical, and the four corners by c,d,e, and f. To remember which corner is which letter, imagine the letters arranged in alphabetical order around a clock face; "c" is the upper right corner, "d" lower right, etc. The same is true for the 3-pointed segments s,t,u, and v. Figure 3 is a memory reminder as to which letter is which line segment.

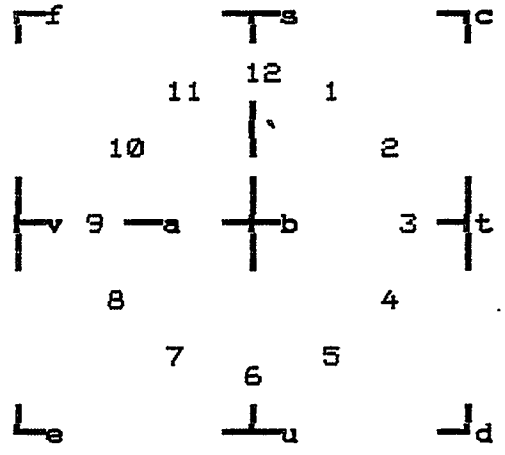


fig.3 - Arrange the Graphics Segments on a Clock Face to Help Remember Them

Now fill in the lower portion with the "i" key (the halftone fill), and add the labels for the keys. Your cursor keys and other functions should all work normally as long as they don't use graphics mode. For example, don't toggle the "Insert" mode in PIE because it will disable graphics on you. When finished, the on-screen picture should look like figure 1. Save the file to disk as you would normally.

Let's type the file we created and see what it looks like. Notice that we are still in graphics mode, so any lowercase text appears as "computer swearing". Using uppercase so we can read it, type "TYPE PICTURE". The computer will obligingly display our picture on the screen. Notice that everything is in graphics, even the top line that was originally in lower case.

Now let's return to text mode. Go off-line, type ESC G, then back on-line. If we again type the picture, it appears in lowercase.

How can we get the picture to be automatically displayed in graphics? As we discussed, your text editor will fight tooth and nail to prevent you from inserting an ESC in a text file. So we'll do it a "quick and dirty" way.

Let's assume you are working with CP/M. Type the following commands:

```
A)PIP GRAPHICS=CON:⟨return⟩
⟨ESC⟩ F ⟨control-Z⟩
```

This delightful trick creates a 3-character file called GRAPHICS containing an ESCape, an F, and a control-Z (which only marks the end of the file). Do it again to create the file TEXT:

```
A)PIP TEXT=CON:⟨return⟩
⟨ESC⟩ G ⟨control-Z⟩
```

Now we can TYPE GRAPHICS at the A) to enable graphics mode, and TYPE TEXT to enable text mode. What we are doing is telling the computer to tell the TLB to switch modes; it's easier than using the off-line method.

Next let's append these little files onto the beginning and end of our picture file like this:

```
A)PIP CALC=GRAPHICS,PICTURE,TEXT
```

This command tells PIP to create a single file called CALC that includes GRAPHICS to enable the graphics mode, then the PICTURE itself, and finally TEXT to switch back to text mode. We can now TYPE CALC to display the calculator picture in graphics mode, and automatically return to text mode upon exit. (Betcha didn't know PIP had these tricks up its sleeve).

Thus, we have a crude but effective method of creating graphics. Create the pictures with your word processor by manually switching the TLB into graphics mode. Then use PIP to append any necessary control sequences onto the beginning and end of the file before displaying it.

Tips And Techniques

An advantage of this approach is that the full power of your word processor is at your disposal. Pictures can be of any height and width, limited only by what your word processor can handle. The popular graphic editor ED-A-SKETCH is limited to just one screen (24 lines by 80 columns). For example, this entire article was created and edited as a single text file (text and graphics) using the Magic Wand word processor. I have created 50-page manuals with dozens of illustrations using this technique.

Of course, it gets difficult at times to use a text editor for something for which it wasn't intended. Here are a few tricks to make the job easier.

1. Use block moves to save retyping.
   If the same pattern is repeated several times, it is easier to copy the first one than to retype it. In our calculator example, make one line with the vertical bar on each side and the "i" area fill between them. Then copy this line 10 times to quickly form the body.

2. Use search-and-replace for awkward commands.
   Pictures often contain odd sequences of keys that are awkward to type. So substitute an easily-typed key or sequence instead. When finished, replace the temporary key with the desired one.

   For example, PIE makes it hard to enter an ESC code (control-K, ESC). So substitute the "%" key. Then tell PIE to find all occurrences of % and change it to ESC.

3. Put key "macros" to good use.
   Most editors and word processors have at least one "macro" key, i.e. a way to program one key to do a sequence of commands. For instance, drawing a vertical line is awkward because the cursor moves "right" after each keystroke, while you want it to move "down". So program your macro key to type the vertical bar (`), then move the cursor left, and finally down a line, ready for the next iteration.

   PIE's macro facility (the BLUE key) is particularly nice because it lets you record a whole sequence of commands, including cursor movements. You can even record a sequence of commands that draws a multiline object like an IC symbol, so it can be easily repeated wherever you like.

4. Use "Smartkey" programs to define objects.
   There are a number of programs that allow you to reprogram what each key on your keyboard does. I use "Write-Hand-Man" from TMSI, though "Superkey" and "Smartkey" also work nicely. If your drawing has a shape that gets repeated many times, you can define a single key to draw it. Put the cursor where you want the object, and "pop" it onto the screen.

5. Create a library of commonly-used shapes.
   Most word processors let you insert text from a second disk file. By creating a library of shapes, you can simply insert them rather than retyping each time. A good example is a file with large versions of the alphabet, like those used in the heading of this article. The VEDIT editor is particularly good at this sort of thing, because it has a great deal of control over exactly what gets inserted.

Printing H19 Graphics

So now we've created our pictures, and can save them on disk and view them on the screen. How do we print them?

Printers respond to ASCII commands, much like the H19 terminal itself. But while terminals use relatively standardized commands, printers are decidedly non-standardized. Printers all look alike these days (little white boxes), but there has been no real attempt to standardize the commands to control them. So all I can do is describe my approach, and let you take it from there.

Some printers are particularly easy. The Heath H25 printer already includes the H19 graphics characters, so it's as easy to print graphics as it is to display them on the screen. Naturally, they made things difficult by using a different escape code to enable and disable graphics, but that's not a serious barrier.

Other printers are not so easy. The Epson MX-80 (and its clones) are common, but not very easy to do graphics on. The Epson has a sort of "Swiss Army Knife" command set -- lots of gadgets to do things, but none of them works very well for the task at hand.

This article was printed on an Okidata Microline-92 printer. It's my third Okidata, and I have nothing but praise for them. They are fast, rugged, very easy to use, and I can't begin to count how many tens of thousands of pages I've printed.

The Okidata has a very useful feature called a "downline loadable character generator". This means I can re-define what the printed characters look like. When first powered up, it of course uses the standard 96 ASCII printable characters. But I can define up to 96 additional characters. So we'll define a set that looks just like the Heath H19 character set with graphics enabled. Thus printing files with H19 graphics is no more difficult than displaying the files. The only disadvantage is that each time you turn on the power, you must initialize the printer with this set (which is done by printing the file H19GRAPH).

How is this done? First, you design the character set. The Heath manuals have a nice illustration showing just what dots are turned on to make each character (it sure beats flattening your nose against the screen and trying to count dots). The H19 displays its characters in an 8-dot wide by 10-dot high matrix. The Okidata prints each character in an 11-dot wide by 7-dot high matrix. So you have to do a little work on graph paper to decide which dots to print so it looks like the Heath symbols.

Each character will be printed in a pattern called a matrix. The matrix is 11 columns wide, and each column is 7 rows high. There is the additional quirk that you can't place 2 dots side-by-side, or the second dot won't print. Figure 4 shows the matrix, with the "•" graphics character mapped into it.

```
COLUMN: 1  2  3  4  5  6  7  8  9 10 11
        -  -  -  -  -  -  -  -  -  -  -
ROW: 1                                    (1)
     2           •  •  •                  (2)
     3     •     •  •  •     •            (4)
     4     •     •  •  •     •            (8)
     5     •     •  •  •     •            (16)
     6           •  •  •                  (32)
     7                                    (64)
        -  -  -  -  -  -  -  -  -  -  -
SUM:    0 28  0 62  0 62  0 62  0 28  0

COMMAND: \OUT27,37,65,94,0,28,0,62,0,62,0,62,0,28,0
         (for Magic Wand's PRINT program)
```

fig.4 - Matrix for Okidata u92 Printer

Let's put together a command for the "Magic Wand" word processor to download this matrix into the Okidata printer. Magic Wand lets you embed printer commands in a text file with the OUT command. The command \OUT says "printer, I command you to do the following". Thereafter follows 1 or more decimal numbers which are to be sent to the printer exactly as-is.

The Okidata manual says to download a character font, you begin with the sequence ESC % A, which is decimal 27,37,65. Next, send the decimal value of the ASCII character for which this pattern is to be used. In this example, it is the "^", ASCII character 94.

The next 11 numbers define the dot patterns for each of the 11 columns. Each of the 7 rows has a value; a dot in row 1 is worth 1, a dot in row 2 is 2, row 3 is 4, etc. (you'll notice the ever-present binary sequence again). Total up the sum for each column as shown. These sums become the 11 values. Thus, the entire command becomes:

\OUT27,37,65,94,0,28,0,62,0,62,0,62,0,28,0

This has to be done for each of the 96 characters in the alternate character set. To save you this work, Listing 1 contains just such a list for the file H19GRAPH. If you'd like a copy on disk, send me a formatted disk and a dollar for postage.

Once this font is loaded, printing H19 graphics is almost as easy as displaying them. The command ESC 2 enables graphics, and ESC 0 returns to the standard set. Here's a summary:

	H19	Printer
enable graphics mode:	ESC F	ESC 2
	\out27,70	\out27,50
enable text mode:	ESC G	ESC 0
	\out27,71	\out27,48

As before, we can create a pair of 3-character text files with PIP that switch the printer into and out of graphics mode in case our editor won't let us insert ESC codes.

Printing Tips

As before, here are some useful tricks for getting things to print out the way you want. The hints are necessarily specific to my hardware, but similar tricks should be applicable to your situation as well.

1. Adjust printer line spacing.
   Heath's graphic symbols are 10 dots high, while my printer only prints 7-dot high characters (it has 9 print wires, but only 7 at a time can print). So vertical bars look like dashed lines with the standard line spacing. Set the vertical line spacing to 7 dots (14/144", or 10 lines per inch) and vertical lines will be continuous.

2. Adjust horizontal spacing for a "true" image.
   A character cell on the H19 screen is about twice as tall as it is wide. This can be reproduced on the printer by selecting 17.1 cpi. The 80x24 screen therefore prints an image 4.6" wide by 2.3" high. This is how the calculator image was printed. The printed version is roughly half the size of the actual screen image, but the proportions are right.

3. Use a "square" character cell.
   For complex reasons, the best quality pictures are produced when the vertical and horizontal resolutions are the same (a "square" character cell). The Okidata printer can easily do this (72 dots per inch).

   But the H19 has a fixed character cell which is twice as high as it is wide. So for best results, create the image on the screen so it appears "stretched" vertically by 2:1. Then when the image is printed, you will get a more pleasing picture. The title of this article was done this way. Note the uniform spacing of the "periods" in the border, and that diagonal lines are a 45 degree angle.

4. Avoid reverse video.
   You can print reverse video, but there are a couple of reasons to avoid it if possible. First, large black areas suck the printer ribbon dry in nothing flat. Second, the "dottiness" of the dot-matrix process becomes quite obvious in large black areas, lowering image quality.

5. Design your own special characters.
   Sometimes, the standard graphic symbols aren't enough. In this case, alter one (or more) of the existing symbols to suit your purpose.

   Look again at the calculator picture of figure 1. The halftone fills the area smoothly so you can't see the border between each individual "i". But if you think about it, this shouldn't be possible. Each character cell is 7 dots high (a prime number), so there is no way to choose the dots so adjacent cells fit together without a recognizable border.

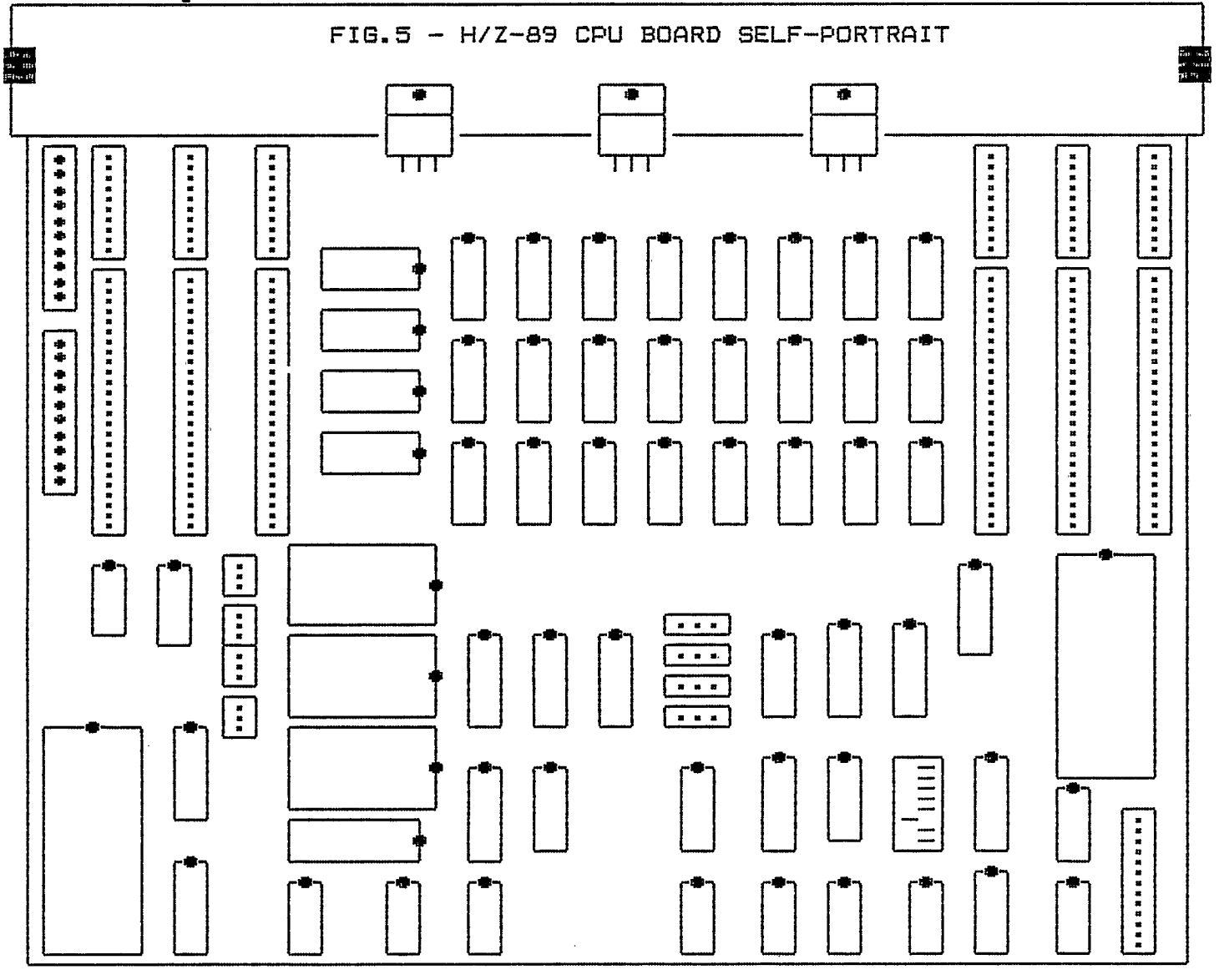
   So I used TWO halftone fill characters, "i" and "j". The "j" is the complement of the "i", so they are used on alternate lines.

Conclusions

As a final demonstration of this technique, figure 5 is a self-portrait of the H89 CPU board itself. So there you have it. No longer need your letters look as boring as the Congressional Record. Now you can make your own letterheads, illustrate your manuals, illuminate your software listings, even print your own Christmas cards. To update an old saying, one picture is worth 2K bytes!

Lee Hart
366 Cloverdale
Ann Arbor, MI 48105
(313) 994-0784

FIG.5 - H/Z-89 CPU BOARD SELF-PORTRAIT



Listing 1 - H19GRAPH

Downline-Loadable Character Set to print H19 Graphics
on Okidata u92 Printer with Magic Wand word processor

```
\OUT27,37,65,32,00,00,00,00,00,00,00,00,00,00,00
\OUT27,37,65,33,00,00,00,00,00,79,00,00,00,00,00
\OUT27,37,65,34,00,00,00,07,00,00,00,07,00,00,00
\OUT27,37,65,35,00,20,0,127,00,20,0,127,00,20,00
\OUT27,37,65,36,00,04,42,00,42,85,42,00,42,16,00
\OUT27,37,65,37,00,06,64,38,16,08,04,50,01,48,00
\OUT27,37,65,38,00,00,48,74,05,72,21,34,64,16,00
\OUT27,37,65,39,00,00,03,08,07,00,00,00,00,00,00
\OUT27,37,65,40,00,00,00,00,00,00,28,34,65,00,00
\OUT27,37,65,41,00,00,00,65,34,28,00,00,00,00,00
\OUT27,37,65,42,00,08,00,42,20,08,20,42,00,08,00
\OUT27,37,65,43,00,08,00,08,00,62,00,08,00,08,00
\OUT27,37,68,44,00,00,24,64,56,00,00,00,00,00,00
\OUT27,37,65,45,00,08,00,08,00,08,00,08,00,08,00
\OUT27,37,65,46,00,00,24,00,24,00,00,00,00,00,00
\OUT27,37,65,47,00,00,64,32,16,08,04,02,01,00,00

\OUT27,37,65,48,00,62,00,97,16,73,04,67,00,62,00
\OUT27,37,65,49,00,00,00,66,0,127,00,64,00,00,00
\OUT27,37,65,50,0,114,00,73,00,73,00,73,00,70,00
\OUT27,37,65,51,00,32,65,00,65,08,65,12,65,50,00
\OUT27,37,65,52,00,16,08,20,02,17,0,124,00,16,00
\OUT27,37,65,53,00,39,64,05,64,05,64,05,64,57,00
\OUT27,37,65,54,00,60,66,09,64,09,64,09,64,48,00
\OUT27,37,65,55,00,01,00,01,96,17,08,05,02,01,00
\OUT27,37,65,56,00,48,78,01,72,01,72,01,78,48,00
\OUT27,37,65,57,00,06,01,72,01,72,01,72,33,30,00
\OUT27,37,65,58,00,00,00,0,108,0,108,00,00,00,00
\OUT27,37,68,59,00,00,00,00,27,64,59,00,00,00,00
\OUT27,37,65,60,00,00,00,00,00,08,20,34,65,00,00
\OUT27,37,65,61,00,20,00,20,00,20,00,20,00,20,00
\OUT27,37,65,62,00,00,65,34,20,08,00,00,00,00,00
\OUT27,37,65,63,00,00,02,01,00,81,00,09,06,00,00

\OUT27,37,65,64,00,62,00,65,00,93,00,85,00,30,00
\OUT27,37,65,65,0,124,02,17,00,17,00,17,2,124,00
\OUT27,37,65,66,00,65,62,65,08,65,08,65,08,54,00
\OUT27,37,65,67,00,62,65,00,65,00,65,00,65,34,00
\OUT27,37,65,68,00,65,62,65,00,65,00,65,34,28,00
\OUT27,37,65,69,0,127,00,73,00,73,00,73,00,65,00
\OUT27,37,65,70,0,127,00,09,00,09,00,09,00,01,00
\OUT27,37,65,71,00,62,65,00,65,08,65,08,65,58,00
\OUT27,37,65,72,0,127,00,08,00,08,00,08,0,127,00
\OUT27,37,65,73,00,00,00,65,0,127,00,65,00,00,00
\OUT27,37,65,74,00,32,64,00,64,01,64,63,00,01,00
\OUT27,37,65,75,0,127,00,08,00,08,04,18,33,64,00
\OUT27,37,65,76,0,127,00,64,00,64,00,64,00,64,00
\OUT27,37,65,77,0,127,00,02,04,24,04,02,0,127,00
\OUT27,37,65,78,0,127,00,02,04,08,16,32,0,127,00
\OUT27,37,65,79,00,62,65,00,65,00,65,00,65,62,00

\OUT27,37,65,80,0,127,00,17,00,17,00,17,00,14,00
\OUT27,37,65,81,00,63,65,00,65,00,81,32,01,94,00
\OUT27,37,65,82,00,0,127,00,09,00,09,16,41,70,00
\OUT27,37,65,83,00,38,73,00,73,00,73,00,73,50,00
\OUT27,37,65,84,00,01,00,01,0,127,00,01,00,01,00
\OUT27,37,65,85,00,63,64,00,64,00,64,00,64,63,00
\OUT27,37,65,86,00,07,08,16,32,64,32,16,08,07,00
\OUT27,37,65,87,00,63,64,32,16,08,16,32,64,63,00
\OUT27,37,65,88,00,00,65,34,20,08,20,34,65,00,00
\OUT27,37,65,89,00,01,02,04,8,112,08,04,02,01,00
\OUT27,37,65,90,00,00,65,32,81,08,69,02,65,00,00
\OUT27,37,65,91,00,00,00,0,127,00,65,00,65,00,00
\OUT27,37,65,92,00,00,01,02,04,08,16,32,64,00,00
\OUT27,37,65,93,00,00,65,00,65,0,127,00,00,00,00
\OUT27,37,65,94,00,28,00,62,00,62,00,62,00,28,00
\OUT27,37,68,95,01,00,03,00,07,00,15,00,31,00,63

\OUT27,37,65,96,00,00,00,0,127,0,127,00,00,00,00
\OUT27,37,65,97,12,00,12,00,12,00,12,00,12,00,12
\OUT27,37,65,98,12,00,12,0,127,0,127,00,12,00,12
\OUT27,37,65,99,12,00,12,0,124,0,124,00,00,00,00
\OUT27,37,65,100,12,0,12,00,15,00,15,00,00,00,00
\OUT27,37,65,101,0,00,00,00,15,00,15,00,12,00,12
\OUT27,37,65,102,0,00,00,0,124,0,124,00,12,00,12
\OUT27,37,65,103,0,68,00,68,00,95,00,68,00,68,00
\OUT27,37,65,104,0,08,00,08,00,42,00,28,00,08,00
\OUT27,37,65,105,85,0,42,00,85,00,42,00,85,00,42
\OUT27,37,65,106,0,08,00,08,00,42,00,08,00,08,00
\OUT27,37,65,107,0,08,00,16,00,62,00,16,00,08,00
\OUT27,37,65,108,0,00,00,00,00,0,120,0,120,0,120
\OUT27,37,65,109,120,0,120,0,120,0,0,00,00,00,00
\OUT27,37,65,110,15,0,15,00,15,00,00,00,00,00,00
\OUT27,37,65,111,0,00,00,00,00,00,15,00,15,00,15

\OUT27,37,65,112,15,0,15,00,15,00,15,00,15,00,15
\OUT27,37,65,113,0,00,00,00,00,0,127,0,127,0,127
\OUT27,37,65,114,63,0,31,00,15,00,07,00,03,00,01
\OUT27,37,65,115,12,0,12,0,124,0,124,00,12,00,12
\OUT27,37,65,116,12,0,12,0,127,0,127,00,00,00,00
\OUT27,37,65,117,12,0,12,00,15,00,15,00,12,00,12
\OUT27,37,65,118,0,00,00,0,127,0,127,00,12,00,12
\OUT27,37,65,119,99,0,54,00,28,00,28,00,54,00,99
\OUT27,37,65,120,96,0,48,00,24,00,12,00,06,00,03
\OUT27,37,65,121,3,00,06,00,12,00,24,00,48,00,96
\OUT27,37,65,122,3,00,03,00,03,00,03,00,03,00,03
\OUT27,37,65,123,96,0,96,00,96,00,96,00,96,00,96
\OUT27,37,65,124,127,0,127,0,0,00,00,00,00,00,00
\OUT27,37,65,125,0,00,00,00,00,00,00,0,127,0,127
\OUT27,37,65,126,0,04,10,00,62,00,02,60,02,00,00
\OUT27,37,65,127,127,0,127,0,127,0,127,0,127,0,127
```

A good accounting program doesn't have to be expensive

ABACUS™ introduces today's coordinated business system. General Ledger integrates with Accounts Payable and Accounts Receivable and Payroll integrates with Cost Accounting to form a smart, balanced business investment, all for 69^{95}.

The ABACUS™ system's General Ledger, Accounts Payable and Accounts Receivable are integrated modules which, along with Payroll and Cost Accounting, form a complete coordinated business system.

GENERAL LEDGER

General Ledger is a complete menu-driven system. Features include: automatic posting from accounts payable/receivable, direct posting, trial, special, monthly or quarterly report types with either income statement or balance formats for the current quarter, 1st, 2nd, or 3rd previous quarters. Full data-entry verification and complete file maintenance. Integrates with accounts payable and accounts receivable.

PAYROLL

Payroll is a complete menu-driven system. Features include: hourly, salary, vacation, holiday, overtime and doubletime pay types; recurring or one-time taxable or non-taxable lump sums, union dues; H & W, vacation, current, quarterly, and yearly totals; history for all employees, complete journal, W-2's, government tax reports, union report, full data verification and complete file maintenance. Is integrated with cost accounting.

ABACUS™
the Accounting Tool

$69.95

Source code licensing available

COST ACCOUNTING

Cost accounting allows employee earnings to be distributed among various jobs and tasks that employees work on. Cost distributed this way can be reported by job, giving a cost breakdown. This module is integrated within the payroll menu.

ACCOUNTS PAYABLE

Accounts Payable is a complete menu-driven system. Features include: full aging analysis, debit memos, check register with general ledger breakdown, check printing, handwritten checks, partial payments, ledger reports, general ledger posting file, full data verification, and complete file maintenance. Also integrates with general ledger.

ACCOUNTS RECEIVABLE

Accounts Receivable is a complete menu-driven system. Features include: full aging analysis, customer file, credit and debit memos, invoice billing, invoice payment, progress payments, interest calculations, statement printing, general ledger posting file, full data verification, and complete file maintenance. Also integrates with general ledger.

ABACUS™

ABACUS™ comes with a professionally written manual. All file sizes are limited only by disk capacity of computer system. **All of the modules are offered with fully documented SOURCE CODE, written in CBASIC, a popular programming language.** However, ABACUS™ does not require CBASIC to run.

Minimum Hardware Requirements:

CP/M and PC-DOS systems: 64K, two 5¼" DSDD floppy disks, or two 8" SSDD floppy disks, 132-column printer in compressed mode, 80x24 CRT. Please specify machine and disk format.

**CP/M is a registered trademark of Digital Research, Inc. PC-DOS is a registered trademark of IBM.*

sun soft™

Dealer Inquiries Invited

To Order, Call

(906) 226-3370

Sunsoft inc. 916 W. Baraga Ave. P.O. Box 1168 Marquette Mi. 49855

Send in this coupon with your credit card number, money order or check for $69.95 plus $6.50 postage and handling, or call 906-226-3370.

☐CHECK ☐MONEY ORDER
☐VISA ☐MASTERCARD

ACCOUNT NO._____ EXPIRES_____

Name

Address

City State Zip

Phone Signature 130

Sunsoft inc. provides a 30-day money-back guarantee that all features in this ad are true.

ZCPR3-IN + H-89 = Super Computer!

ZCPR3-IN installs ZCPR3 almost automatically.

What is ZCPR3? It replaces part of your CP/M operating system and gives your H-89 capabilities even "Big Blue" can't match. Forget where your .COM file is — ZCPR3 will find it. Edit, erase, move or do almost anything else to a file just by pointing at its name with an arrow. Protect your files against intruders. Create sophisticated menus easily. ZCPR3 does all this AND MORE. And ZCPR3 is in the public domain. It's yours for the asking.

ZCPR3's big drawback: It is difficult to install. It takes dozens of hours of trial and error using DDT to get it working. Often, it still doesn't work right. You could buy an expensive proprietary product to install ZCPR3 automatically. Or you can use ZCPR3-IN to install ZCPR3 quickly for less than ten dollars. Your H-89 does most of the work, you just supervise.

ZCPR3-IN installs ZCPR3 on your H-89 using a mix of our own programs and public domain software. We've done the hard work for you. Tailor ZCPR3 to do what you want. Complete installation takes only an hour or two. ZCPR3-IN comes with a detailed 12-page manual that leads you step-by-step through a simple procedure. If you like Heath manuals, you'll love this one! Our manual writer also writes for Heathkit.

What do you need? H-89, Heath CP/M 2.2.03 or .04, soft-sector disk controller (sorry, hard sector version still being tested). Two drives are best, but one will work. The Digital Research MAC Assembler is required to assemble ZCPR3.

What do you get? Everything else you need, including ZCPR3 code. Order our disk with ZCPR3 utilities, too. It's cheaper than long-distance downloading from bulletin boards, and you get current versions of the utilities.

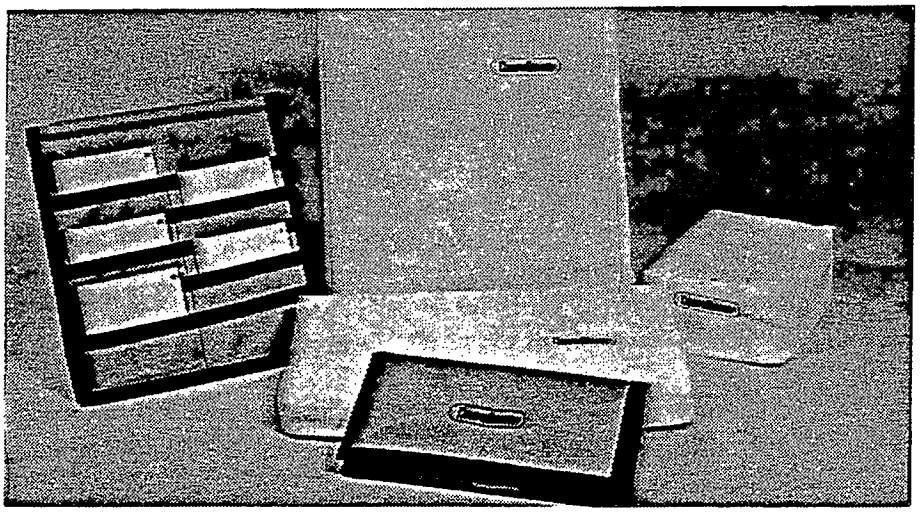
How do you get it? Write or call (telephone answered 24 hours) TODAY. ZCPR3-IN is available now. We'll ship the day after we receive your order. Visa and MasterCard accepted, no extra charge.

ZCPR3-IN, with manual . . . . . Only $9.95 + $2.00 shipping
ZCPR3 Utilities Disk . . . . . Only $7.95 + $1.25 shipping

Wheeler Associates, Limited

POST OFFICE BOX 9512 / ALEXANDRIA, VIRGINIA 22304

(703)751-6168



COVER YOUR INVESTMENT

SUPER WAREHOUSE SPECIAL

Tan Cloth Backed Vinyl

H-19, H-89, H-90	$8.50	NEC 3500 Printer	$6.00
H-44 or H-25 Printer	$8.00	NEC SpinWriter	$6.00
H-120 Keyboard & Monitor	$9.50	Okidata M82/M92	$6.00
Zenith 121 or 134 Monitor	$6.50	Okidata M83/M84 M93/94	$7.50
Kaypro II Computer	$8.50	Okidata 125 - 250	$8.50
Osboune I Computer	$8.50	Brother HR-1 and HR-15	$6.00
C.Itoh ProWrithe 8510	$6.50	Diablo 630	$8.00
C.Itoh F-10/F-40 Printer	$9.00	Epson MX-100	$6.00

Over 4000 Designs Available
Call for Further Information or a Free Catalog

1-(800) 874-6391

CompuCover®
P O. Box 310 (Dept. 8)
#1 Andalusia St.
Mary Esther, Fl
32569

Dealer Inquiries Invited

Customer Service
(904) 243-5793

CompuCover is a Trademark of Robert Helms

POWERFUL SORTING & RECORD SELECTION REPORT GENERATOR & COMPUTATION BUILT-IN

PROFLOSS generates a 14 column income and expense report → INCLUDED AT NO CHARGE WITH FILEBASE

UTL consolidates frequently used file functions into a single program with self-typing, single keystroke initiated commands. → FREE ON FILEBASE DISK

FILEBASE™

REVIEWS

==> 11/13/84
"FILEBASE, A DATABASE MANAGER FROM EWDP, MAY BE JUST THE MAILMERGE SUPER UTILITY YOU'VE BEEN WAITING FOR"

"ONCE YOU'VE TRIED FILEBASE, YOU'LL WONDER HOW YOU EVER GOT ALONG WITHOUT IT"

"YOU WON'T WANT TO USE MAILMERGE WITHOUT THE FILE-JUGGLING MUSCLE OF FILEBASE"

"A POWERFUL PRODUCT" -- 6/18/84 <== InfoWorld

DATA BASED ADVISOR™ ==> 08/84 "EASY TO LEARN, SIMPLE TO USE" "NOT A STRIPPED DOWN PROGRAM"

"FOR ITS PRICE, THE BEST DATA BASE PROGRAM WE'VE SEEN" 02/84 <== User's Guide

soft sector — The Monthly Magazine for Sanyo MBC-550 and 555 Users ==> 08/84 "ONE OF THE BETTER DATA BASES FOR THE SANYO"

"EVERYTHING YOU COULD ASK IN DOCUMENTATION, FUNCTION AND PRICE" 2/84 <=== Dr. Dobb's Journal For Users of Small Computer Systems

Microsystems ==> 08/83 "SORTS ON LAST NAME EVEN IF EMBEDDED IN FULL NAME"

"MENU AND PROMPT DRIVEN ... INTERACTIVE RECORD EXAMINATION" 2/84 <== Lifelines™

COMPUTER SHOPPER™ 10/84 ==> "AMAZING SORT AND SELECT" ".. A VERY GOOD BUY"

"SEARCH FEATURES ARE GREAT" 11/84 THE PORTABLE Companion

LIST — THE BUSINESS SOFTWARE DIRECTORY "...ALL OF THE FUNCTIONALITY THAT MANY SMALL-BUSINESS USERS WILL EVER DEMAND, YET SELLS FOR A MODEST $125. WE THINK THAT IT'S A BARGAIN."

ALL FORMATS AVAILABLE: 8" CP/M and machine-specific 5¼" disks for CP/M, MS-DOS, PC-DOS (specify computer & operating system).

EWDP Software, Inc. P.O. Box 40283C Indianapolis IN 46240 (317) 872-8799

WITH COMPLETE SUPPORT FOR JUST $125

NoLabelSystem™

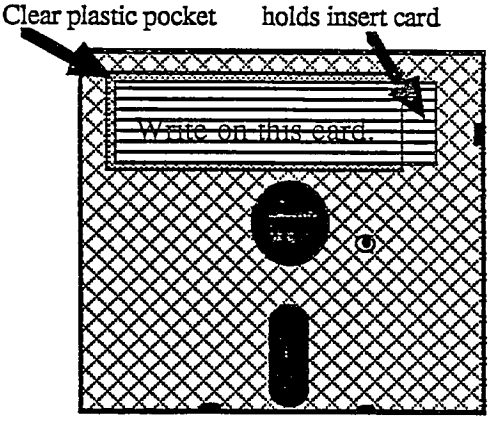
"NO MORE STICKY DISKS!"

(the permanent label system)

HOW MANY TIMES have you peeled off your disk labels and replaced them with new labels? Weber's alternative is called the: NoLabelSystem - can also be called: "the PERMANENT LABEL." But...an un-sticky disk - by any name....

The NoLabelSystem consists of 100 plastic pockets that can be affixed to a disk, plus 100 white tabbed insert cards, 100 tabbed color coded cards and instructions.

To use this system you stick the plastic pocket onto a disk, slide in the tabbed insert card, then when you want to rename the disk, just slide in a new card. The tab sticks out of the pocket so it's easy to see.



Disk Size	NoLabelSystem Kit #	Price/Kit (deliv'd)	Contents of kits:
3.5"	NLS 3.5/100	$22.45	Includes: 100 pockets,100 white & 100 color tabbed inserts.
5.25"	NLS 5.25/100	$22.45	Includes: 100 pockets, 100 cont.(tractor feed) white & 100 cut color inserts.
8"	NLS 8/100	$22.45	Includes: 100 pockets, 100 cont.(tractor feed) white & 100 cut color inserts.

Disk Files by Weber

Hold up to 150 disks each!

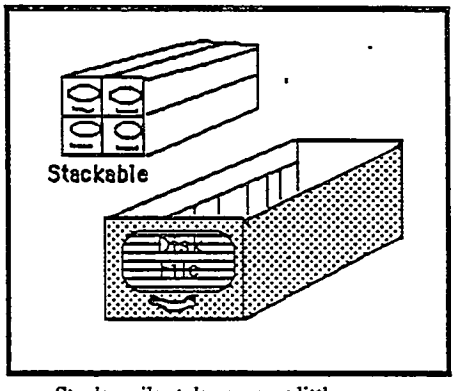
for 3.5", 5.25" and 8" disks

Weber's tough, rugged, durable, strong , white corrugated Disk Files are made of 200# test mottled white board, double-wall; built in adjustable backstops and convenient dividers to use between disks help you keep you disks protected, identified and organized.

NEW! Shipped flat, easy to assemble. Included with each DiskFile: 1 drawer, 1 removable lid, 1 pull-drawer sleeve, 3 moveable backstops, 10 dividers to use between disks.

Can be waterproof coated (optional). Add: $3.00/file.

Attachment to make DiskFile portable(carry by handle) add $3.00/file.



Stack easily, take up very little space

Portable Attachment avialable, add: $3.00.

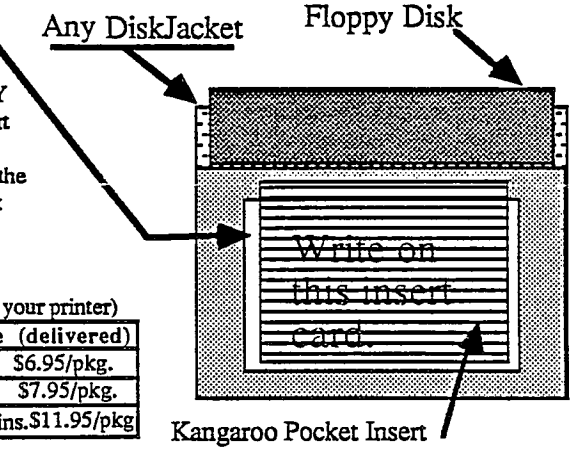
Cat.No.	Dimensions	Capacity	Price (delvd)
3.5-D	14 1/4" L x 5 1/4"W x 4 3/4"H	100-3.5"	$11.95
5.25-DS	8"L x 7 1/4"W x 8 1/4"H	75-5.25"	$10.95
5.25-D	16"L x 7 1/4"W x 8 1/4"H	150-5.25"	$13.95
8-D	16"L x 10" W x 9" H	150-8"	$19.95

Note: Price per unit includes shipping and handling charges, FOB, Freehold,NJ

KangarooPockettes

Weber's KangarooPockettes are handy plastic pockets you affix to ANY disk jacket. The pocket then provides you with a place to put the insert card. On the insert card you write facts about the disk and it's contents so you and others who use the disk will know what's on the disk. As the contents of the disk change, just fill in new information about the disk on the insert card. It all works together to help you keep your disks identified and organized. Insert cards are available in either white or assorted colors (red,green,yellow, pink & orange).

NEW #KPWCC-25-5 has tractor-feed, 3x5 white inserts(use with your printer)



Cat No.	Color of inserts	Size	Qty/pkg.	Price (delivered)
KPW-25-4	White	3"H x 4"W	25 pkts+25 inserts	$6.95/pkg.
KPCC-25-4	Asstd colors	3" H x 4" W	25 pkts+25 inserts	$7.95/pkg.
KPWCC-25-5	Both	3 3/4" H x 5 1/4" W	25 pkts +50 ins.	$11.95/pkg

Weber & Sons, Inc

3468 Highway 9, R.D.#4, Freehold, New Jersey 07728

NJ: (201) 431-1128

Other States: 800 225-0044

BANNER PROGRAM
$19.95

Our new banner program can print sideways banners in a variety of type styles and sizes. Program is compatable with our "Calligraphy" library of over 20 type styles. Operates with Epson, Gemini, and MPI. Uses CP/M on H89 or CP/M-85 on Z100. Program plus 2 font styles is 19.95. Additional font sets can be purchased separately.

H89 Screen Dump
$24.95

The screen display of your H89 can be printed on your EPSON, GEMINI or MPI printer. Print text, graphics and reverse video modes from existing screens or use the "draw" mode to create screens. Operates under CP/M.

Other Products

EPSON FX character downloader	19.95
OKIDATA 82/83 letter quality/graphics module	99.00
Calligraphy II for EPSON, GEMINI and MPI	69.00
FONT SETS 2, 3, 4 for Calligraphy and Banner	19.95 each

SKYCASTLE

COMPUTER PRODUCTS

P.O. Box 1412, San Carlos, Ca. 94070

Phone (415) 254-3931

QUIKDATA, INC.

for

TOTAL HEATH/ZENITH SUPPORT!

WE DID NOT FORGET YOU

If you're reading this advertisement, you probably own one or more Heath/Zenith microcomputers. The Heath/Zenith computers are the best buy in price/performance systems available. Now that you've got the best, get the most out of your system. CHECK US OUT!

Quikdata, Inc., is the oldest independent H/Z supplier in the business! The fact that we're still around is no accident. It is the result of the past 10 years of activity exclusively in the Heath/Zenith world: total support; dedication; hard work; new innovations; lowest prices; etc. We are the mail order company that actually stocks **every product in our catalog** - all orders shipped within 24 hours from receipt. Of course publishing the outspoken and popular independent H/Z related newsletter, **H-SCOOP** didn't hurt either. CHECK US OUT!

Between our mail order company, **Quikdata, Inc.**, and the newsletter **H-SCOOP**, you just can't go wrong. We continue where others give up. When Heath or Zenith tell the customer they can't help them, we usually can. Upset that both Heath and Zenith have dropped support of their 8-bit computers? We did not! CHECK US OUT!

If you are looking for hardware and software for any H/Z computer systems (sorry, not the H-11), we can help you - yes, including the H8 and H89. For the 8-bit systems we still stock software, disk drives, diskettes, printers, winchester drives, memory expansions, spare boards (both refurb and warranted working boards, and as-is parts boards), modems, cables, and on and on and on. CHECK US OUT!

H-SCOOP, the independent double density newsletter for H/Z computer support is probably the best asset you and your system can enjoy. You see, we've been supporting only H/Z systems since before Zenith was ever part of the whole scenario. In fact, we've been in the H/Z support business ever since the first H8's came rolling off the assembly line - 1977. The first issue of the newsletter was mailed FIRST CLASS MAIL April 1980; it has continued each and every month like clockwork ever since.

Why **H-SCOOP**? Because **H-SCOOP** is the **only** H/Z related publication that dares to be different! Since we are not affiliated with Heath or Zenith, we tell it like it is. Keep in touch with the latest developments from Heath, Zenith and other independent vendors. The latest in hardware and software. The best prices. Know the vendors you can feel confident to deal with - and those to stay away from. Keep in touch with those having similar interests as yourself, and know who is doing what with their systems. Have a problem or need some advice? Use the REQUEST column. Want to sell or buy something? CLASSIFIEDS gets results. Reports. Reviews. Good guys & Bad guys - who are they? Who can you trust to deal with?

H-SCOOP is $24/year first class mail to the US and Canada; $32 overseas AIR MAIL.

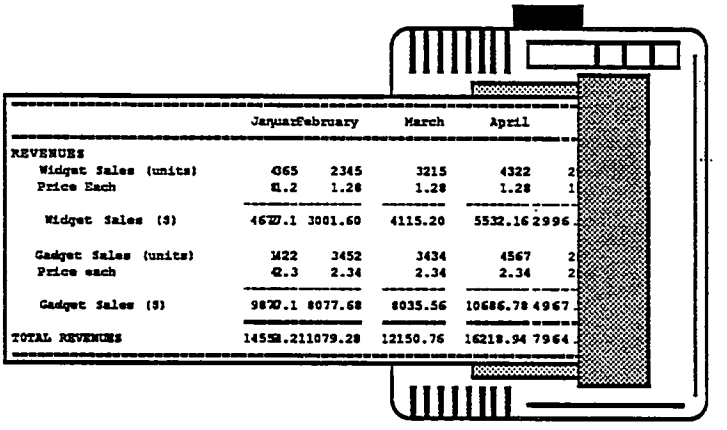
The QUIKDATA CATALOG is free. VISA/MC accepted. Call or write for a free no-obligation catalog and a sample issue of H-SCOOP. It will be one of the better things you've done.

Feel better now? Good - That's what we're all about!

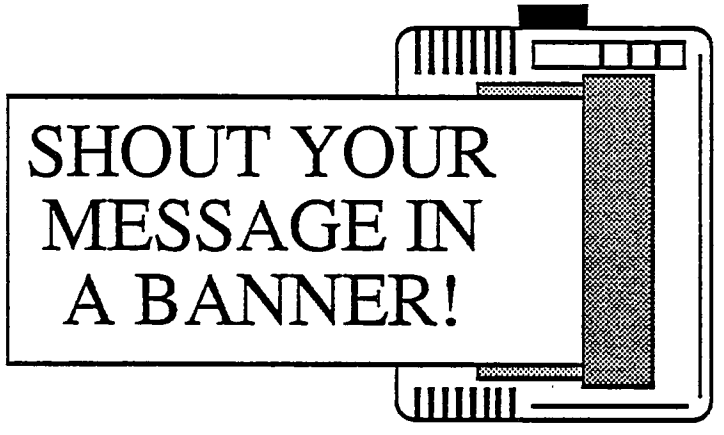
QUIKDATA, INC.
2618 Penn Cir
Sheboygan, WI 53081
(414) 452-4172

TWIST & SHOUT!

Sideways and Banner Printing Utility for Dot-Matrix Printers



	January	February	March	April	
REVENUES					
Widget Sales (units)	665	2345	3215	4322	2
Price Each	1.2	1.28	1.28	1.28	1
Widget Sales ($)	4677.1	3001.60	4115.20	5532.16	2996
Gadget Sales (units)	1422	3452	3434	4567	2
Price each	2.3	2.34	2.34	2.34	2
Gadget Sales ($)	9870.1	8077.68	8035.56	10686.78	4967
TOTAL REVENUES	14552.2	11079.28	12150.76	16218.94	7964



*Available for all MS/DOS and CP/M computers for the low price of **$34.95**!*

***Special Offer:** For the two computer family — one MS/DOS and one CP/M copy of TWIST & SHOUT! for just **$49.95**!*

TWIST: Did you ever have to print out a spreadsheet that was too wide for your printer? You spent the rest of the afternoon with scissors and tape putting all those little pieces into one useable printout. Well, *TWIST* is the answer for those giant spreadsheets... no more cutting and taping because it *twists* your printer's output SIDEWAYS and lets you print spreadsheets (or any text file) of any width on one continuous sheet of paper.

SHOUT!: Get your message across in no uncertain terms — now you, your computer and your dot-matrix printer can say ***HAPPY BIRTHDAY MOM*** in eight inch high letters in any of three special type styles. Create banners, signs, posters or oversize greeting cards. Anything you can type on the keyboard can be *SHOUTed* by your printer in gigantic letters!

TWIST & SHOUT! is available for *all* MS/DOS and *all* CP/M computers and supports these dot-matrix printers: **Anadex** DP-9000A, DP-9001A, DP-9500A, DP-9501A and DP-9625B, **Apple** Dot Matrix Printer, Imagewriter I and II, **Base 2** Model 800, **BMC** MicroGraphic, **Centronics** 150-3 and 739, **C. Itoh** 8510 Prowriter, 8600B and 8610 BPI, **CTI** CT-80, **DataProducts** SPG8050, SPG8070 and SPG8010, **DEC** LA50, all **Epsons** and compatibles, **Gemini** 10X, 15X, 10X-PC and 15X-PC, all 'S' and 'n' series, **Hewlett Packard** Thinkjet and HP82905, all **IBM** Graphics printers, Proprinters and compatibles, **IDS** Prism 80/132 (with Dot Plot), MicroPrism, 445 and 560, **Legend** 880 and 1360, **Mannesmann Tally** Spirit and MT160, **MPI** Sprinter, Printmate 99 and 150, **NEC** 8023AC and P5 Series (P560 and P565), **Okidata** 82 or 83 (with Okigraph or PC-Write ROMs), 84, 84 Step 2, 92, 93, 192 and 193, **Panasonic** 1091, **Smith Corona** FastText 80. If your printer isn't on the list — call us!

TWIST & SHOUT! sells for **$34.95** plus **$4** shipping/handling and is available now! Order one MS/DOS version and one CP/M version for just **$49.95** plus **$4** shipping/handling. Overseas airmail add $12. Foreign checks must be in US funds drawn on a US bank. California residents, add 6% sales tax (LA County, add 6 1/2%). The CP/M version is stocked in Osborne, Kaypro and Morrow disk formats. If your CP/M computer can't read an Osborne, Kaypro or Morrow disk, we'll make *TWIST & SHOUT!* available in virtually any other CP/M disk format for an additional $5 disk transfer fee.

To place COD or credit card orders: **Call TOLL FREE: 800-824-7888 (Ask for Operator 409)**

MasterCard, VISA American Express

Alaska, Hawaii, call: 800-824-7919 (Ask for Operator 409)
Technical questions or orders, call 818-716-1655
Telex 332658 (SPECTRE), Source STE444, CIS [70235,1346]

For more information, a free brochure (review reprints, other products) or to order by mail, contact:

T E C H N O L O G I E S, I N C.

22458 Ventura Blvd, Ste. E
Woodland Hills, CA 91364
Telephone: 818-716-1655 (Mon-Fri 9-5 PST)