PORT TO PORTAL -- Editorial

Apollo XI and Neil Armstrong's "one small step" have been much in the news the last month. Forgotten is the near-tragedy of Apollo XIII almost a year later (April, 1970) when it suffered hardware failure on the way to the moon.

This issue, too, has suffered problems merely making it to the printer--also of a hardware nature--and lived up (or down) to its issue number! My Neanderthal system died the first week of July and it took me two weeks to resuscitate it. I'll have more to say about that in a later issue. But I should draw your attention to two items of particular note in this installment.

First, you'll find a flyer about a new newsletter exclusively for the H/Z-100 published by Paul Herman in Florida. As "independents," we will be swapping issues and assisting each other, even though our target audiences are substantially different. I think you'll see this association bear considerable fruit as time passes. And if you happen to be running a '100 alongside that H-8 or '89/90, I strongly recommend receiving **Z-100 LifeLine.**

Second, I'm making a couple production changes starting with this issue. If you've been with **Staunch** for the past year, you've probably noticed how editorial material has crept onto the insert, originally intended to **only** contain software listings and ads. Well, with this issue I'm officially merging the four pages the insert has ballooned to with the eight of editorial to give you 12 solid pages of material. Software listings will continue, but always on p. 2, spilling over to p. 3 if necessary. On the other hand, advertising has proved to be disappointing, so when there is any, it will appear as a single-sheet insert.

Not so apparent will be an "upscale" envelope. I've been using the #9 business size since issue #6, mainly because of its lower weight. But the growth of this publication has made stuffing them into an art form. Since mailing weight has long since broken the one-ounce barrier, averaging 1-1/2 for the past year, I'm shifting to #10 envelopes. This will give **Staunch**'s production "crew" (me) a **little** more flexibility without significantly increasing cost or delivery to you.

So sit back in your recliner and enjoy!

Kirk L. Thompson

THE EIGHT-BIT R/W -- LETTERS

UNKEYMAPping. [From William Derby, P.O. Box 2041, Livermore, CA 94550] ...I have been experimenting with the Pat Swayne KEYMAP program (HUG part # 885-1230) in conjunction with ... [my own] CLE program. Needless to say, it is a beautiful combination; I will discuss the details of this in ... [an upcoming] CLE article...

After using the KEYMAP program as an enhancement to CLE, it became clear it should be part of my normal system. I find it desirable to generate a 62K system to accommodate both KEYMAP and CLE as part of the system. In the process I found the solution to two problems with the KEYMAP program. The first ... is that KEYMAP must be disabled before using programs such as [Magic Wand's] EDIT that use the keys for other purposes; if you forget this, you are in trouble. [But see Hank Lotz's comments in "MISCELLANY." -Ed.] The second problem is that KEYMAP does not provide a means to unload a KEYMAP installed above the BIOS.

The programs I wrote to solve the problems may be of interest to others with the KEYMAP program. I have included the programs for you to decide to publish them (the first is 53 lines; the second is 100 lines) in part or whole, or to refer them to me with an SASE for the programs. [See below. -Ed.]

The first program is EDITX.ASM; this is an adjunct to EDIT.COM in the Magic Wand package. The method could just as easily be applied to other similar programs. By examination of the KEYMAP in memory, the program detects an enabled KEYMAP and aborts with the message KEYMAP ENABLED. The program is constructed with ASM, DDT, and SAVE as indicated in the program listing.

The second program is UNKEY.ASM; it is a stand-alone program. It will unload a KEYMAP loaded above the BIOS; a KEYMAP loaded below the BIOS (and the CCP) can and should be unloaded by the normal process. The program terminates with a message if KEYMAP is not installed, or if it is installed below the CP/M system.

The programs are designed for KEYMAP version 1.1 (and EDIT 1.12). Minor changes may be needed for other versions; but no new versions have been released in the last six years. This may be a desirable side-effect of the 'abandonment' of CP/M by the major players...

Staunch #12 continues the string of past accolades; I was especially glad to see Pat Swayne still interested in CP/M.... [Thanks for the note on KEYMAP, Bill. Readers interested in the ASM source should write directly to you, including an SASE for the listings. And readers should see the update announcement for CLE in VENDOR.UPDATE. -Ed.]

Public Domain Hardware? [From Lee Hart, 28612 Middle Crossing Road, Dowagiac, MI 49047] I liked Tom Rittenhouse's idea for public domain hardware (May, '89, **SEBHC Journal**). In fact, I've always liked it; every construction article in a magazine is public domain hardware. The author is accepting a small but guaranteed payment for his design, instead of the risk of setting up a business and trying to sell it commercially. The magazine or author copyrights the article so unscrupulous companies can't just steal his design and reproduce it as-is. But anyone who buys the magazine is free to reproduce it for his own use. [Thanks, Lee, and readers should check VENDOR.UPDATE for current goings-on at TMSI. -Ed.]

Plaudits. [From Daniel Gilbertson, Richland Center, WI] I appreciate your efforts in putting together the **Staunch** newsletter. It and the **SEBHC Journal** have become my most thoroughly read computer periodicals. The index of articles in the January issue was a great idea.

(Continued on p. 2 after the Software Listing)

SOFTWARE LISTING

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HDOS FORTRAN LIBRARY

(By Rick Lutowski)
(Provided by Mark Hunt)

Note: For the "codes" below, refer to the bottom of the FORTRAN listing.

FORTRAN Utilities:
"LIBMGR" HDOS Library Manager/.REL File Dump/M80 Routines; HS disks: 1, codes: SAD

FORTRAN-callable ASM Subroutine Libraries:
"AM9511B" FORTRAN-transparent AM9511 Library for HA-89-3 graphics board; HS disks: 2, codes: SRDT
"AM9511A" FORTRAN-transparent Library for other AM9511 math chip implementations; HS disks: 2, codes: SRDT
"HDOSLIB" HDOS Interface Library; HS disks: 1, codes: SRDT
"HOSLIB" HDOS System Call Library for F80/M80; HS disks: 1, codes: S
"BITLIB" Bit Manipulation Library; HS disks: 1, codes: SRDT
"CPULIB" 8080 Machine Architecture Library; HS disks: 1, codes: SRDT

FORTRAN Language Subroutine Libraries:
"OVLIB" Overlay Package to load/execute/pass parameters to another FORTRAN ABS program; HS disks: 2, codes: SRDT
"ADSORT" Address Sort Library for F80/M80; HS disks: 2, codes: SRDT
"UNILIB" Units Definition/Conversion Library; HS disks: 2, codes: SRDT
"CILIB" Console Input Library; HS disks: 2, codes: SRDT

"MICRO-CORE" FORTRAN-callable Graphics Package:
"MCORE" MICRO-CORE Graphics Package for F80/M80 and graphics video, pen potter, or printer; HS disks: 3, codes: SRD
"MCORC" Character Generation Package; HS disks: 1, codes: SRDT
"FONTDEF" Character Font Definition Program--
.ABS binary for HA-89-3; HS disks: 1, codes: *A
.DOC documentation; HS disks: 1, codes: D
.FOR source code; HS disks: 1, codes: S

"MICRO-CORE" Device Drivers:
"SDD" Skeleton Graphics Device Driver; HS disks: 1, codes: SDT
"HA89" For HA-89-3 Color Graphics Board and TMS-9918A Color Video Chip; HS disks: 1, codes: SRDT
"HZ19" For Standard H/Z-19/89 Video Terminal; HS disks: 1, codes: SRDT
"MCDEMO" MICRO-CORE Demonstration .ABS Program for HA-89-3; HS disks: 1, codes: *A

Codes: S - includes .FOR or .MAC source code
R - includes .REL relocatable binary
A - includes .ABS runnable binary
D - includes .DOC documentation
T - includes test program
* - requires AMD9511 math chip

(My thanks to Rick Lutowski and Mark Hunt.)

Updates to Previous Releases

HDOS 2.0 Manual

(Written by Heath Co.)
(Keyed by Daniel Jerome)

Except for one item, the HDOS 2.0 manual is now complete. Just finished is **Chapter Seven**: System Programmer's Guide. This is a merge of three Heath publications covering HDOS 1.5 through 2.0 system and system calls (SCALLs). Dan's SMUGH team has added information on five **undocumented** SCALLs, three of which are useful. It occupies two hard-sector disks and costs $12 irrespective of the format you order (see below); also available as hardcopy at the same price. Remaining yet, awaiting permission from the authors, is an article about writing device drivers. This will be shipped to purchasers at no charge as soon as it becomes available. See issue #'s 9 and 11 for prior manual releases.

HOW TO ORDER

Except for the HDOS manual, your cost depends on what you supply:

Formatted disk(s) and self-addressed, stamped return mailer ..... $2.00 each
Formatted disk(s) without mailer ..... $4.00 each
No disk(s) or mailer ..... $6.00 each

Disk formats available are standard (SS/SD) and double-sided (DS/SD), 40-track (48-tpi) hard-sector and 40-track soft-sector, single- or double-sided, for both CP/M and HDOS. Please clearly indicate the format you are supplying or require. If you desire double-sided hard-sector or any soft-sector format, I will pack multiple items as described above onto one disk for the **single-disk** charge. But I will not subdivide a disk. Send your order to:

Kirk L. Thompson / **The Staunch 8/89'er** / #6 West Branch Mob Hom Vil / Rte. 1 / West Branch, IA 52358

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THE EIGHT-BIT R/W (Continued)

Patching FORMAT. [From two notes by Robert Corbett, Torrington, CT] Got to fooling around with the H/Z, and thinking about the "extended format" [when doing soft-sector disks], and about having it show on the screen during the selection phase of formatting a disk. Looked at FORMAT.COM with DDT and found that there are two places to get that part of the display from ... [But] the patch is ... in a slightly different location in different versions of the FORMAT.COM file.

What one should look for in the same general location (0700 to 07B0) is the following code...0E 09 11 D1 13 CD 05 00. And change the D1 to 94 ... Found [the locations] at 07A6 in one version, and at 07A9 in another.... [Thanks, Bob, for a useful and easy patch for CP/M 2.2.03! This works and I found the patch point at 07A6 in my older version. From the DDT hardcopy that Bob sent with his notes and I verified, do the following; what you type is in boldface and the x's are immaterial digits:

```
A>DDT FORMAT.COM
DDT VERS 2.2
NEXT PC
xxxx 0100
-D750
0750 xx xx xx xx xx xx xx xx xx xx xx ...
   . . .
07A0 xx xx xx 0E 09 11 D1 13 CD 05 00 ...
   . . .
0800 xx xx xx xx xx xx xx xx xx xx xx ...
```

[Now scan over on the line beginning with "07A0", looking for "D1". Skip over that first column, then count the number of columns (starting at **zero**) till you get to that "D1". This column number should be **either** "6" or "9". Use this number as "n" in the following as you continue using DDT:

```
-S7An
07An D1 94
07Ax 13 ^C
A>SAVE 23 FORMAT.COM
```

[If you **don't** get "D1" at address 07An, press CTRL-C immediately, check your column number on the screen and repeat the entire process. And if you're running hard-sector, there's no need for you to worry about this; it only applies to soft-sector disk systems.]

On VDE and Two "Generic" HDOS Printer Drivers. [From two letters by Al Sophianopoulos, Atlanta, GA] Thanks for the VDE disk. It turned out to be more useful than I thought. Minor as the changes are [from the prior version I have], they are useful in direct printing of a file because one can set the top and left margins ... I would like to thank you for the credit you gave me. I do appreciate it very much and, after a year+ of **Staunch**, I realize the value of the services you offer to the 8-bitters (?!)...

Mighty clever of Hank [Lotz] to go into ANSI [for his keypad cursor movement patch to VDE] to avoid the double characters in the keys. I am, however, using the KEYMAP [from HUG]. He really put a lot of work into it and in preparing the instructions.

Admittedly, I am not using much HDOS because of more software in CP/M, although I like it a lot and my wife uses it. You might mention something about the drivers [on the Quikdata disks] because, especially nowadays with many new printers, the standard HDOS [drivers] have troubles. I have used the Anderson-Jacobson [on HS-008] with both my antique DecWriter II (LA36?) and MPI99 and had no problems. It might be good with many dot-matrix ones. The Daisygraph DIABLO [on HS-017] should work in non-Diablo (or Diablo?) mode with many daisywheels. It will also take lines 250 characters long...

The Daisygraph Diablo driver in non-Diablo mode is the ONLY one that works with my Brother (Diablo 630 code) printer. The [Anderson-Jacobson] one on the "selectric" disk is very versatile for most other non-Heath specific (H25) printers. Anyone who has trouble finding an HDOS driver should try either one or both. These drivers are worth (at least) the price of the disks. [Very interesting, Al. I **knew** I got a bargain when Henry Fale gave me the disks, but I didn't realize it was so good! -Ed.]

Mini-Conference? [From Terry Hall, 516 E. Wakeman, Wheaton, IL 60187] I've an idea for you to possibly toss out to your readership to see what response we get. I think it'd be neat if us die-hard H/Z 8-bit fans got together for a 'mini-conference.' I'd be glad to volunteer to host the conference if people wanted to come to [the] Chicago area. I can get cheap rooms at Wheaton College just a few blocks away at off times (such as summers or Christmas vacation). We could have teaching sessions by different ones who have a specialty plus lots of good-old rap sessions. It wouldn't matter how many or how few of us there were. I would enjoy just having you and Dan Jerome and Richard M[usgrave] and Rick Steeter and ??? What do you think about pulling this off next summer for a few days? [**Very** interesting, Terry. Lenny Geisler, editor of **SEBHC Journal**, has also approached me with the same idea for this summer. But a year's lead-time is more reasonable for organizing such a thing. If any of you readers are interested, let either Terry or me know! -Ed.]

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CONTACTS

(A Wanted/For Sale/Swap Column)

HDOS 3.02 Manual. The "word mechanics" are at it again! A brand-new manual is being constructed, for HDOS 3.02. It illustrates extensive modifications and improvements over HDOS 2.0 and enhancements to the original HDOS 3.0. All data for HDOS 3.02 will be available in one place. When complete, the manual will range from 200 to 400 pages!

Reservations are now being taken for a target completion date of August/September 1989. The price will be $60. This will include the binary 3.02 system, documentation either on-disk or as hardcopy (your choice), and binder with section dividers. The disks will be available as 40-track, single- or double-sided hard- or 40-track, single- or double-sided soft-sector.

All those interested are encouraged to contact Kirk L. Thompson; Editor, **The Staunch 8/89'er**; #6 West Branch Mob Hom Vil; West Branch, IA 52358; home phone: 319-643-6136. Send no money now, but a copy will be reserved for you. When ready, you will be contacted.

At present, chapters 1 and 2 are complete. Other chapters will follow as time permits and update bulletins will be issued on the status of the effort. The final product is projected to have eight chapters: System Configuration, General Operations (including SYSCMD/PLUS and PIP/PLUS version 3.02), Console Debugger (DEBUG), Line Editor (EDIT), Assembly Language (ASM), Extended Benton Harbor BASIC, System Programmers' Guide (with a section for programming device drivers), and Miscellaneous Items.

Writer for the effort is Dan Jerome (who has already keyed the HDOS 2.0 manual for **Staunch**) with assistance from Richard Musgrave (MIGHTY-SOFT, Box 11164, Kansas City, MO 64119), HDOS 3.02 system developer.

Terry Hall (516 E. Wakeman, Wheaton, IL 60187, 312-665-4594) "WANTED: CDR RAMdrive89 board, preferably 2-board set for 1 meg." [Terry still has quite a bit of software for sale and swap; contact him for a listing. -Ed.]

Richard Musgrave (MIGHTY-SOFT, Box 11164, Kansas City, MO 64119) Wanted: 1 Mbyte C.D.R. RAMdrive-89 with HDOS 2.0 software.

Robert Cooper (1301 E. Ave. I, #23, Lancaster, CA 93535, home: 805-942-5669, BBS: 805-949-6404, work: 805-277-3153) "FOR SALE: 1) H90/H37/3 serial ports/4 96-tpi drives (2 external)/Anapro clock/H-14/NZ-COM/ZSDOS/software -- $400 plus shipping; 2) H90/H37 controller/C.D.R. RAMdrive + real-time clock/key repeat/Hart's SuperSet-SuperFont/2 96-tpi half-height drives/3 serial ports/NZ-COM system/ZSDOS with DATE-STAMPER/lots of software and manuals -- $650 plus shipping; H-19 terminal with Watzman and Norcom ROMs -- $75 or best offer plus shipping. All systems in excellent condition."

Ed Cardwell (633 Prairie, Wapello, IA 52653, home: 319-523-5101) "WANTED: Information on running Olivetti PR2300 parallel printer off H-8-2 board."

Harold D. Harfoot (Electronic Control Service, 4430 SW 34th Drive, Ft. Lauderdale, FL 33312, home: 305-983-33312) "WANTED: ...H-1000 working or not but parts for same." Also needs help interfacing Diablo printer with Magic Wand and willing to exchange.

Bill DuBay (15045 Saticoy St., #229, Van Nuys, CA 91405, 818-782-0880) "FOR SALE - Classic H8/H19, Z80, 64K+, H17/H37, 5 floppy drives, 15 Meg QuikStor HD, color + music boards, gold Trionix motherboard (not installed), all software + doc including CP/M, HDOS, C/NIX, WordStar, DBASEII, MBASIC, MAC-80, dbplus, C/80, ILISP, games. Large collections of **REMark**, **Sextant**. Any reasonable offer accepted."

Dan Jerome (801 E. 132nd St., Burnsville, MN 55337) "FEE-TYPING TO ORDER: Ex-technical writer available for fee-typing, either large or small jobs. The fee is $2.00 per page. If the job is over 100 pages, there is a sliding fee. I am used to deadlines. I reserve the right of refusal on grounds of copyright, legality, or porno. Applications: Documentation files for programmers, technical data and tables, source-code listings, college themes, papers, etc. Products are available in either - or both - hard-copy or disks. I can prepare a disk on H17 or H37, or even IBM compatible. Choose a letter-quality font, including COURIER (very dark), PRESTIGE (medium dark), SCRIPT (medium dark), and SANS SERIF (medium dark)"

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Fragments

by Hank Lotz / 2024 Sampson St. / Pgh, PA 15221

No dedicated single topic today -- instead, an accumulation I definitely want to share.

Return of the Missing MBASIC Command: An MBASIC tip appeared on page 7 of **Staunch** #1 (4th quarter 1986). It told of an undocumented way to change the line number of just a **single line** in an MBASIC listing (thus "moving" the line -- or duplicating it if desired!). It works under both HDOS and CP/M. I won't repeat the whole trick, but I recently found the same CTRL-A command is good beyond mere program-line editing (in the interpreter only, not compiled MBASIC.) You can use CTRL-A **during execution** of an MBASIC program to edit your **input** to the program! For example, during your response to an INPUT or LINE INPUT you can hit CTRL-A and edit whatever you're actively typing. Or you can do the CTRL-A after your program gives an error message asking you to retype some beastly long line. (This even works with the infamous "Redo from start".) You never have to retype the entire line; use the edit-feature subcommands in your MBASIC manual. For example, after the CTRL-A, type L to redisplay the old input. (Behavior of some commands is different when editing a line of program code.) And if the edited input still bombs, hit CTRL-A a second time and try again -- as long as you're still in the program run, you're still in the game. Once the program stops, you can still edit the last thing typed but that's usually too late.

A Glance at Derby's Enhanced Utilities: I spent fifteen bucks and updated my Derby Utilities. The original set had 4 programs: SD, COPY, CMP, and SUB. The enhanced release improves old capability and adds new. Programs supplied: CMP.COM, CPIP.COM, CSD.COM, SCAN.COM, SD.COM, SUB.COM. Associated files: CHECK.SUM, SUB.BAT. (COPY.COM now comes from CPIP.COM; read on.) Hardcopy documentation is supplied. If you want to try it new (i.e., you're not updating) the price is $25.

I'll be brief, for the update is described in **Staunch** #11, p.7. I'm happy with the package, and here's something good "they didn't tell me": Because COPY is now all in one module I don't have to change drives before I run it, as I had to before. Through a one-time use of "CPIP," "COPY" is born via an automatic patch to PIP. After that, one may ERASE both PIP.COM and CPIP.COM. (To run the old-version COPY, PIP also had to be on disk.)

The new arrival, SCAN, is a fast way to look at files (even object files) without the limitations of TYPE, and you can even search for strings. If a line is longer than 80 characters SCAN splits it so it gets displayed, whereas the TYPE command loses ends of lines unless your terminal "wraparound" is enabled. I have a slight quibble with this feature because I keep my wraparound **enabled at all times**, which means I don't need line-splitting. Therefore it's redundant, causing **double** spacing on my screen. Are there any other "wrap enablers" like me out there? You'll be interested to know I solved the problem by writing a patch. My patch to SCAN (although long) works nicely by disabling your wraparound when you enter SCAN, and restoring it when you're done, all without your noticing. You may have the patch, free, if you send an SASE to the address under my name above. (And take a look at the last sentence in this article.)

Patch the CP/M 1-char Buffer?: See Pat Swayne's letter to me in **Staunch** #8, p.8, describing a 1-char buffer in the BDOS. (Unfortunately, Pat cited the TYPE command which is not a true example; but

the problem acts just as he says when it **does** occur.) Well I was thinking, CP/M has to have a way to know when the 1-char buffer is full. Thus, **why** couldn't we write into our own programs a routine to POKE at whatever "counter(s)" or "flag byte(s)" are necessary to fool the system into thinking the buffer is full; then we wouldn't lose a character. But note well: For all I know, my proposal may depend on the "lost" byte **not** getting stored in external hardware somewhere, like a port! But if indeed it does not, the idea might be workable. Then afterwards we could patch things back to normal before the program exits. If the program doesn't terminate gracefully -- say, due to a user's aborting it with CTRL-C -- then I'm shot down, for **some** char might show on the screen after return to the system. But one way to take **some** of the sting out of **that** is to **not** "turn off" the buffer **unless and until** input is expected, and always turn it back "on" each time the anticipation period passes. Admittedly that's not perfect, plus it **could** mean a bit of switching. Follow-up, anyone?

Subroutine To Call BDOS Functions via FORTRAN: I've been fooling with CP/M's assembler again and I "invented" a great way to lend **new** capabilities to (CP/M) FORTRAN-80 programmers. I say "lend" since these new features don't become an integral part of the FORTRAN-80 language itself. But, through a small (15-byte) assembly subroutine, we can have badly needed programming capabilities now **missing** from FORTRAN-80! We can also avoid the excessive memory demands imposed by some of FORTRAN's existing features, by offering **alternatives** to those features -- while still retaining a large measure of high-level convenience. I'm probably not the first and sole discoverer of this. But I **may** be the only one (or one of very few) to **pass it on**!

Sorely missed, in FORTRAN, was a clean way to detect the existence (or absence) of a disk file, or even to delete a file. The following subroutine allows that and more. I call it DISKFN(a1,a2,a3) since much of it is for disk work. Actually it can do terminal I/O, too. DISKFN will do **all** the following: Create file, Open/Close file, Read/Write file (rand or seq), Check file existence, Delete file, Change DMA address (useful for, among other things, fast filling of big arrays), get Console Status, **and more.** (MBASIC **used to** beat out FORTRAN with that last biggie!) The (a1,a2,a3) is the argument list, see sample calling program for actual use. Also, for more about passing 3 parameters like this, and which CPU registers they use, see **Staunch** #2, p.7 including the comments in the listing on that page.

```
; DISKFN.MAC -- BDOS FNCT SUBROUTINE FOR FORTRAN:
;            Hank Lotz, March 1989
; Sample calling sequence: CALL DISKFN(NF,FCB,FNCT)
; Some functions put OFFH in reg A upon error. But
; regardless of A's contents, it is returned in the
; first argument, NF. Simple vars, NF and FNCT, and
; the array FCB(36) are all INTEGER*1 in MAIN. The
; FCB array also contains IDRV and NAMF(11), both
; INTEGER*1. If random access is done, FCB uses the
; IREC of INTEGER*2 (see EQUIVALENCE's). DISKFN
; always alters the NF (Not Found) flag, so MAIN
; never has to zero it. The FCB, originally, must
; be properly zeroed out (see CP/M Interface Guide,
; p.6.) DISKFN relies on MAIN to do this. Set IREC
; to 0 to access record 1.
;
; A few FNCT examples: 15=OPEN FILE, 16=CLOSE FILE,
; 17=SEARCH FOR FIRST. Other BDOS FNCT's also work.
; (18=SEARCH FOR NEXT does NOT work with this.)
;
; For SET DMA ADDRESS (FNCT=26): use
;  CALL DISKFN(IDM,IBUF,FNCT)
; For PRINT STRING to console (FNCT=9): use
;  CALL DISKFN(IDM,MESG,FNCT)
; In above 2 cases, IDM (an INTEGER*1 throwaway
; dummy) takes any meaningless A. IBUF(128) array
; is INTEGER*1 "DMA" buffer. MESG() array (length
; may vary) is INTEGER*1 with message ending with $
;
        ENTRY   DISKFN  ;Declare entry point.
DISKFN: PUSH    PSW     ;Save accumulator, flags.
        PUSH    B ;Save addr of FNCT (BDOS funct)
        PUSH    D ;Save address of FCB array
        PUSH    H ;Save addr of NF (Not-found flag)
        LDAX    B ;Reg A gets FNCT val at adr in BC
        MOV     C,A     ;Set BDOS function
        CALL    0005H   ;(DE already points to FCB)
        POP     H       ;Get address of NF
        MOV     M,A ;Ret accum contnt (status code)
        POP     D
        POP     B
        POP     PSW
        RET
        END
```

The following should give some idea of a MAIN, or calling program. Statements (except comments) should actually start in column 7, not as shown.

```
  INTEGER*1 NF,FCB(36),FNCT,IDRV,NAMF(11),IDM
  INTEGER*1 IBUF(128)
  INTEGER*2 IREC
  EQUIVALENCE (FCB(1),IDRV),(FCB(2),NAMF(1))
  EQUIVALENCE (FCB(34),IREC)
C IREC IS INTEGER*2 SO IT USES UP FCB(34) AND (35)
C ALSO FCB(34) IS FCB(33) IF ARRAY SUB STARTED AT 0
C INITIALIZE VARIABLES:
  DATA FCB/36*0/
C TO SAVE ROOM HERE, JUST LET FILE BE ZZZZZZZZ.ZZZ
C AND REMEMBER, THE EQUIVALENCE SETS NAMF INTO FCB.
  DATA NAMF/11*'Z'/
C DRIVE A:=1, B:=2, ETC;  LET'S USE B:
  IDRV=2
C NOW OPEN FILE B:ZZZZZZZZ.ZZZ
  FNCT=15
  CALL DISKFN(NF,FCB,FNCT)
C IF NF = -1 FILE IS NOT FOUND (BRANCH NOT SHOWN).
C POINT DMA AREA TO IBUF ARRAY. DISKFN EXPLAINS IDM
  FNCT=26
  CALL DISKFN(IDM,IBUF,FNCT)
C NOW DO A RANDOM READ OF 1ST SECTOR INTO IBUF:
  IREC=0
  FNCT=33
  CALL DISKFN(NF,FCB,FNCT)
C HERE, IF NF=0, OK, ELSE ERROR (BRANCH NOT SHOWN).
```

Here we leave the example. At this point the disk record is in IBUF array. A natural continuation (in a real program of mine) is to alter a few of IBUF's elements and write it back to the file by setting

FNCT=34 and doing a CALL DISKFN(NF,FCB,FNCT). Much, much more can be done; space severely limits our discussion. Notice we didn't need FORTRAN's "OPEN" statement, thus we didn't define any LUN, but we didn't need it, as DISKFN made the "READ(6,100)" form (where LUN, for example, is 6) unnecessary.

The assembly subroutine as listed here is compatible with Microsoft's MACRO-80 Assembler, M80, to give a relocatable. How do you work that, and then link the assembly language to the FORTRAN to get a COM file? Well, I showed that in **Staunch** #2 and #5, and I'll be touching on parts of it again in the future; no room for it this time. But if there are questions, you should know by now you're welcome to write to me, Hank Lotz; my address heads this article. I'd like to hear from you anyway! An SASE would be helpful. While you're at it, comment on any **Staunch**- or computer-related stuff you have in mind.

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VENDOR.UPDATE

What Doing at TMSI. [From Lee Hart, **TMSI**, 28612 Middle Crossing Road, Dowagiac, MI 49047, 616-782-3980] "H89 SOFT-SECTOR CONTROLLERS. Between you and me, Quikdata gets their H89 soft-sector boards from me. I certainly don't mind if Henry wants to have a sale [see the announcement in issue #11, p. 8 -Ed.]; the more he sells, the better. However, I'm not short on parts or boards, and can supply them indefinitely. What would **really** help is getting enough orders to have them wave-soldered instead of hand-assembled. That would reduce the price substantially. Henry does source the H8 soft-sector board himself; it's this one that I think is in limited supply.

"NEW SOURCE OF H89 DRIVE ENCLOSURES. Heath offered two kits to mount disk drives inside an H89. First was the H88-1, intended for a single full-height drive connected to a hard-sector controller. It can be recognized by a U-shaped copper and mu-metal laminated shield that covers the left side of the drive and part of the top and bottom.

"This shield does not do a very good job. The inside of the H89 is a pretty hostile environment for a disk. The power transformer, fan, and deflection yoke all produce magnetic fields, while high voltage corona from the flyback transformer and picture tube can generate intense electrical noise. Many H89s exhibit disk errors if you use the H88-1 with an 80-track drive, especially with a soft-sector controller.

"Later, Heath offered the H88-9. This was a heavy 4-sided box that completely surrounded the disk drive. It also revised the grounding, so power supply ground current didn't flow in the shield. The result was a much quieter environment for the disk drive, so 80-track drives worked reliably. It also made it easier to use two 1/2-height drives, simply by drilling two new holes.

"Heath sold out of the H88-9 long ago, but I refuse to put up with 40-track drives. There's no way I could go back to only 90K on a disk. A number of other people seem to be in the same boat. So I did some checking to see what it would take to put the H88-9 back in production.

"For a minimum order of 50 pieces, I can have a production run of the metal parts made. The remaining hardware, cables, and voltage regulator can be readily assembled from conventional sources. The price would be $15 for the sheet metal parts only (to change an H88-1 into an H88-9), or $25 for a complete kit like Heath sold it (everything needed to install a disk drive in an H89 that never had one). We can even include the extra holes to mount two 1/2-height 5-1/4" (or even 3-1/2") drives. I have [9] reservations already. Interested? Contact me ASAP...

"COOLING THE H89. So much misinformation has appeared about "cooling problems" in the H89 that I finally decided to write an article ... It pains me to see H89s with huge holes hacked in the case; nonsense like the Kres fan that just stirs the same hot air around in the cabinet, and products that saved a few pennies by using old parts that drastically increase power supply loading. [Lee's article will appear next January in issue #16! -Ed.]

"SUPERSET ENHANCEMENTS. I've continued to expand the Superset. It now has programmable functions for the top row f1-f5, BLUE, RED, and WHITE keys. While many programs put these keys to good use, many generic ones like BASIC, CP/M, and HDOS ignore them.

"So I added a feature from Bill Parrot's Ultra-ROM. The top-row function keys can now send text strings to reduce typing. In CP/M for example, they send DIR, REN, USER, LIST, STAT, PIP, ERA, and TYPE. In HDOS they send CAT, SY0:, SY1:, MOUNT, DISMOUNT, RESET, COPY, and TYPE. In MBASIC they send LOAD ", SAVE ", LIST, GOTO, GOSUB, RETURN, FOR, and NEXT.

"But the Superset goes beyond the Ultra-ROM. If the clock/calendar is displayed, you can also have the function keys automatically labelled on the 25th line, so you can see what they do. The labels automatically disappear if you run a program that uses the 25th line, and reappear when you return to the operating system.

"With the Superclock, the function keys become user programmable. Any ASCII string can be programmed, including function keys and ESC sequences. Once set, your changes are non-volatile and so unaffected by reset or even power-down.

The Window commands have been improved. These commands instantly move rectangular blocks of characters (n-high by m-wide) on the screen. This is great for pull-down menus, non-destructive help screens, dialog boxes, etc. But it was tricky to use window commands for fast-moving objects (sprites). The moves weren't synchronized to the scanning of the screen, so an object moved over 30 times a second could flicker or disappear entirely.

"This was fixed by adding an option to synchronize window commands to the scanning of the screen. Sprites are now flicker-free, and can even be opaque (so you can't see through them) or transparent (so you can read text/graphics through them as they pass in front). And they said it couldn't be done on an H19!

"Other changes: The Superset borrowed a feature from the Super-19, which displays characters received with the 8th bit set in the current attribute (reverse video, blinking, etc.) This

CONTACTS
(Addendum)

Richard A. Brooks (R.R. #1, Box 390, Fremont, IN 46737-9785, phone: 219-495-4962) "Wanted: an H-89 computer. Also parts to repair and upgrade a damaged unit. Want a co-processor board and a disk controller that can handle a hard disk as well as an 8" drive. Also a printer interface. I'm partly disable and can't afford to pay much. But I can promise that your H-89 won't go to waste." [Rick, I recommend you contact Quikdata, Inc. (P.O. Box 1242, Sheboygan, WI 53082-1242) for replacement boards. Also see the next item on this supplement. -Ed.]

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VENDOR.UPDATE
(Addendum)

Heath Co. Service Fees. [From Leon Cray, Supervisor, Computer Hardware Consultation, Heath Co., Benton Harbor, MI 49022] "Thank you for your recent letter regarding service fees for the modules from the H-89 Computer.

"The Heath Company Factory Service Department still continues to service the H-89 Computer and its accessories. We will continue to do so until such time as replacement components are no longer available.

"The flat-rate labor fees for the various modules are as follows. The cost of replacement parts are additional.

Z-89-37 Soft sectored disk controller	$45.00
H-88-3 Serial interface board	24.00
CPU Circuit board	50.00
Terminal logic circuit board	40.00
H-88-1 [Hard-sector] Floppy disk controller	45.00
WH-88-16 Memory expansion	42.00

"The service fee for the entire H-89 Computer is $105.00. If you are unable to diagnose the problem to a single module or if you suspect problems may exist on more than one module, it is frequently less expensive to have the entire H-89 Computer serviced."

In Memoriam: Sextant/BUSS. This "story" (as I term it in this issue's regular **VENDOR.UPDATE** section) developed faster than I expected. I dropped this issue's camera-ready copy off at the printer the morning of 31 July and read in **H-SCOOP** #113 that was waiting in my mailbox that afternoon that Sextant Publishing has folded! Even though **Sextant** was no longer the exclusively 8-bit-oriented magazine that it was when its first issue appeared in the spring of '82, I deeply regret its passing. The same also applies to **BUSS** newsletter, though most of the interesting stuff had long since migrated to its glossier sister by its last issue this spring. And while not in on the ground floor there (my subscription "only" began with #16, dated August, '79), **BUSS** goes back even further, to shortly before Heath shipped the first H-8 in Sept., '77. But I know many of you feel the same as I about their passing.

The main reason for Sextant's demise was falling advertising income. With a hardware standard (IBM's), proliferating PC magazines, and a decline in the number of vendors continuing to support the 8-bit machine, I'm not terribly surprised. I even advertised my generic keyboard overlays in it for four issues last year, but couldn't sustain it because of the high cost (even for a sixth of a page) and pitiful sales! With its comparatively small circulation (versus the likes of **Byte**) and high, industry-standard, ad rates, it had nothing to attract the non-Heath/-Zenith advertiser.

Further, I'm disturbed by publisher Charles Floto's disregard for both his advertisers and subscribers. A good number of the former have paid for copy which will, now, never appear. In his obituary, Henry Fale (**H-SCOOP** #113) mentions that advertisers **may** get their money back. But what about the subscribers who renewed for a good chunk last winter? To quote Henry, "the subscribers just got screwed!" (p. 1). Further, folding magazines often make arrangements with others to fulfil the subscription terms they might have outstanding. (I ended up with a year's worth of **PC Tech Journal** that way when **Microcomputing** folded years ago.) But I don't expect that to happen here. That's mainly because the dying magazine usually **pays** the alternative for the "privilege" and I don't think Sextant can afford that. I am, however, trying to get hold of **Sextant**'s database, even if I have to pay for it. And I think Charlie **owes** at least that to his 8-bit subscribers!

Parenthetically, I have no intentions of pulling that stunt with you! When--not if, because it will happen eventually--when **circulation** declines to the point where I don't think publishing is worth struggling with any longer, I'll **announce** a termination date. But that's some time in the future, yet. Circulation is still growing and I'm already planning a direct-mail promotion for later this year.

So, though I mourn Sextant Publishing's passing, we are **officially** served notice that the world had changed forever! As I suggest on this issue's formal pages, those of us devoted to the H/Z 8-bit machines must now rely, with minor exceptions, **entirely** on ourselves for support. That's the reason for **Staunch**'s very existence. But I can't continue publishing without **your** support: subscriptions, letters, article contributions, and software. Eight-bit systems are far from dead, but only if we help **each other** use them to their fullest!

greatly reduces the need for ESC sequences to display graphics and reverse video, but caused problems with some programs that accidentally sent characters with the 8th bit set. So an ESC sequence was added to enable/disable this mode." [To be continued in the next issue! -Ed.]

The Saga Continues! [In **H-SCOOP** #111, Henry Fale of **Quikdata Services** (2618 Penn Circle, Sheboygan, WI 53081-4250) mentioned that "Software Toolworks just released all the HDOS programs to Quikdata that they had for reselling." I wrote Henry, asking when these would be available. He replied:] "...[A]lthough I have received all HDOS disks, and am working on the CP/M disks, I don't have any documentation yet. All I currently did was obtain all the disks and make copies of them. I wrote about the documentation and am still waiting to hear from Software Toolworks. Ever since they got 'big' they are impossible to deal with, and move slower than a snail stuck in jelly in January! I'll let you know via **H-SCOOP** when the whole thing comes together..."

[In his announcement in **H-SCOOP**, Henry concluded, "We will do our best to reinstate the HDOS and CP/M software and see once again how it goes. Perhaps being the only dealer carrying this stuff, it may make sales worth the problems of stocking, duplicating disks, etc. If not, they will again be discontinued; and this time forever!"

[Further, if you were observant, you may have noticed the omission of two disks (HS-012 and HS-015) from the listing of released Quikdata HDOS software on the last issue's insert. In my letter, I also asked Henry about these. He continued:] "I do not want the HS-012 in the public domain. It was written specifically for [Quikdata] and is a professional product. It does what a dedicated $1000 disk exercizer does. I have thought about re-marketing it with good documentation, etc., but it has a drawback. We use it here to test all drives, including 8", but the hitch is it must be used in conjunction with a hard-sector controller only. It basically allows you to step to any track and read/write data to that track. Thus with a proper scope, you can read the analog alignment disks and perform alignment on the drives, among other things. The HS-015 was for 400K drives and basically was a disk filled with files made on a perfectly aligned drive. The theory was if you could read the entire disk, your drive was in alignment; if not, it was not. This disk cannot be make without a 96TPI drive known to be in perfect alignment, thus would be useless to copy and distribute."

[Thanks for the info, Henry, and I'll keep you readers posted on the situation at Quikdata. You might write, though, to encourage Henry in his efforts. -Ed.]

SEBHC Journal **Anniversary Special.** Lenny Geisler, editor of the **Journal** is having a sale on back issues and renewals. All three back issue volumes, bound in a fiberboard binder, are combined with a **new** one-year subscription (starting in Aug., '89) for a total of $76.50, saving $8.50 off the retail price. Foreign subscribers "please add $8 in U.S. funds to cover shipping of the three-volume package", but shipping is prepaid in the U.S. and possessions. Foreign subscriptions are U.S. $25, so check with Lenny if you're interested in combining a subscription with the back issue sets.

If you're **renewing**, Lenny is also discounting combos of bound volumes with the renewal. Next year and any single one-year volume is discounted $3.75 to $33.50; next year and any bound two-year volume is $51.75; and a year's subscription and all three bound volumes is $69.75. A **two-year** new or renewed subscription is discounted $1.50 to $33.50, with 10% off "ANY single in-house HDOS or CP/M software disc".

All subscriptions start in August with Vol. IV, No. 1, and these offers **expire** on August 1st, so you'd better get a move on! "Please indicate on your order if it's the New Subscriber's Renewal/Upgrade Special. Payment MUST be by cheque or money order only in U.S. DOLLARS and made payable to L. Giesler." Send your checks and queries to: Leonard Geisler, Editor; **SEBHC Journal**; 895 Starwick Drive; Ann Arbor, MI 48105; phone 313-662-0750, 9 am to 6 pm Eastern, Monday through Friday.

Derby's Command Line Editor (CLE) Update. [From **William Derby**] "The Updated CLE Command Line Editor is an improved version of the earlier program developed in 1988. It was developed on a Heath/-Zenith H89; it works on a H89, Z100, Kaypro II, or any computer with a CP/M 2.2 system. The CLE source and installation programs are included with the program.

"With the updated version, any of the most recently transmitted command lines can be recalled for further editing and retransmission. The last ten to twenty command lines are usually available from the 256-character buffer that holds all the commands for instant recall. The installation sequence is consolidated in a single program that generates a compact 1K file containing all that is needed to install the CLE program.

"Since the earliest days of computing, operating systems have been most unforgiving of the user who makes a mistake while typing input to the system. A command line typically consisting of up to 80 characters must often be retyped in its entirety - all because of one little error; and unfortunately, the longer the command line, the more likely it is to be entered in error. Despite recent advances in micro operating systems, the situation is not improving dramatically; there must be a better way.

"The CLE command line editor works in any CP/M 2.2 environment. It makes the correction of errors detected anywhere in a command line convenient before the line is processed; and it allows all recently entered command lines to be recovered for further editing and reentry to the system. The simple and straightforward implementation imposes minimum impact on the already existing system conventions. CLE operations are performed at a level within the system that allows the editing of both program input and normal command lines. The CLE program uses only 8080 instructions, so it can be constructed with the ASM assembler supplied with the CP/M system.

"The CLE program communicates intimately with the BDOS code standard in a CP/M 2.2 system. All the functions of the CP/M system are undisturbed by the presence of the command line editor; and since the

CCP is unaffected, the CLE program will also work in systems like ZCPR that replace the CCP. A special version of the CLE program with the editor incorporated into the BIOS is available for the Heath/Zenith H89 computer.

"The CLE command line editor is distributed with a well commented assembly language source and an automated installation program. Files with the CLE program incorporated into two standard H89 systems, and a submit file to facilitate its inclusion in other systems are also provided. Step by step instructions for all forms of installation, and a description of the operation of the CLE command line editor are included with the program.

"More descriptive information on the CLE Command Line Editor, and on the Enhanced Derby CP/M Utility Programs is available from the author. The CLE Command Line Editor may be ordered for $15.00. The Enhanced Derby CP/M Utility Programs are also available for $25.00; or both may be ordered together for $35.00. All prices include postage in the U.S. Orders indicating preference of CP/M disk format should be sent to W.S. Derby, PO Box 2041, Livermore, CA 94550 (415)443-1741." [For info on Bill's other utilities, see VENDOR.UPDATE in issue #11. -Ed.]

Sextant/BUSS. Sextant Publishing of Washington, DC, publishers of **BUSS** newsletter (the very first H/Z computer newsletter), **The BUSS Directory**, and **Sextant** magazine, appears to be on the verge of collapse. An issue of the vendor directory hasn't appeared in over a year and subscribers of the newsletter and magazine haven't seen an issue since March. Publisher Charles Floto also doesn't answer mail (I volunteered a free ad in **Staunch** when I heard the news) and hardly ever his phone (as Henry Fale reports in **H-SCOOP** #112). And I've been told that at least one author hasn't been paid for his efforts!

In the almost ten years I've had my Neanderthal '89, I've seen four magazines I've subscribed to die. And I've heard of others doing the same. The marketplace has changed and **mass** publications that don't respond to it must necessarily expire. In my judgment, the only hope for non-standard hardware/software like ours are limited-circulation publications like **H-SCOOP**, **SEBHC Journal**, **Z-100 LifeLine**, and **Staunch**, and a **refusal** to rely on advertising (as Henry Fale also discusses in **H-SCOOP** #112) to pay the bills.

With Henry, I hope Charlie Floto can pull things back together. Both **BUSS** and **Sextant** have been valuable resources for us 8-bitters, even though 16-bit material has made its inevitable intrusion onto the pages of both. But with Henry, I hope Charlie is also more forthcoming about the future with his subscribers and advertisers. And I'll keep you posted as this story develops.

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GETTING THE MOST OUT OF EDIT19, VERSION 3.10:

The First in a Series of Three Articles
by Dan Jerome

INTRODUCTION EDIT19 is the most advanced HDOS editor known to man. It has so many features that it will take the average user several months to become accustomed to all the commands that he would normally use during the course of his everyday writing. In order to facilitate your use of EDIT19, I have developed the following tips. These tips should make it much easier to manipulate this fantastic editor and help you to quickly produce neat files. The more you use this fine editor, the more you will like it.

EDIT19 and its seven overlays require 365 sectors. In addition the two HELP files: EDIT19.HLP and EDIT19.HP1, require 66 and 124 sectors respectively. Therefore, EDIT19 is best suited for use with a computer system that is equipped with H37 (soft-sector) drives. [But standard hard-sector use is possible if the editor is placed on SY1: and DIRECT.SYS of that disk reduced in size. Write me for further information. -Ed.]

One may enter EDIT19 either with a DVn:FILENAME.EXT or without. However, I prefer to enter it without, since it has provisions for adding a DVn: and filename, as well as picking up a file from any mounted disk after it is up and running. If you type: EDIT19<RTN>, it reads in overlays 2, 3, 7, and 8, and then it comes to rest in the SCREEN MODE. If you want it to come up in the COMMAND MODE, call it as follows: #EDIT19 <RTN>. The reason you might want to bring it up in the COMMAND MODE is so that you can issue certain commands more efficiently to prepare it for use.

EDIT19 may not come up at all,if your printer driver is still loaded from recently having printed a file. Instead of coming up, it will give you an error message: "NOT ENOUGH MEMORY." To remedy this problem, QUIT EDIT19, get back to the HDOS prompt, and and then immediately reboot. Also, it would be a good idea to have a disk dedicated to EDIT19 and associated files only, and on this disk to limit the device drivers to the bare minimum (i.e., just LP.DVD). In addition, the system disk with EDIT19 on it should carry as few programs and files as possible. This is because if you are editing a large file, EDIT19 creates a number of "scratch files" on SY0:. The total space required by these "scratch files" is equal to the size of the file you want to edit. Using an 80-track disk with only EDIT19 copied to it, I have edited files as large as 1,000 sectors.

EDIT19 requires you to set your operating parameters **each time** you use it. One way to get around this is to write a SETKEYS macro file, as follows:

```
SETSPF1          <===== THIS IS
MARGIN 1 75            THE "MACRO
SETSPF2                LINGO" THAT
MARGIN 5 75            THE COMPUTER
SETSPF3                UNDERSTANDS!
MARGIN 15 65
SETSPF4
WRAP 77          THIS IS          f1      MARGIN 1 75
SETSPF5          THE ENGLISH      f2      MARGIN 5 75
UP 60            TRANSLATION      f3      MARGIN 9 85
SETSPF8             =========>    f4      WRAP 77
CENTER 1                         f5      UP 60 LINES
SETSPFR                          BLUE    CENTER 1 LINE
SAVE                             RED     SAVE THE FILE
SETSPFW                          WHITE   DOWN 60 LINES
DOWN 60
```

Explanation: I use key f1 for my own letter writing, etc. I use key f2 for most commercial writing, since it looks nice on paper, and I use key f3 to set up automatic margins for typing a NOTE or CAUTION, while preparing a manuscript. Key f4 is set to wrap at column 77, because "wrap" tends to anticipate its function too early. I found this setting to be optimum. I normally have my printer driver set for the standard Page=66, Form=60, and paginate my manuscript every 60 lines. Keys f5 and WHITE are very handy for moving rapidly up or down in the file, and also provide a quick check for sequential page numbers, etc. The BLUE key centers a title or phrase. And, finally, the RED key saves a copy of the current file to disk.

I also use the following commands consistently: LARGE (enables one to work files larger than the buffer), ALOCMSG OFF (eliminates the on-screen messages while the program is shifting the "scratch files" back and forth), and DELWARN OFF (eliminates the warning when attempting to delete a line). I have saved all of these commands and settings by the use of the command, DEFSAVE. Now every time I enter EDIT19, I no longer have to worry about issuing repetitive commands just to get set up.

PRELIMINARIES. When you enter EDIT19 for the first time, you should type up the "SETKEYS.MAC" macro just like any other file, and then send it to disk. The next step is to call up "SETKEYS.MAC" and put it to work.

When the macro comes up, EDIT19 loads overlay 4. At that time, you may hit the RETURN key, to clear the COMMAND MODE screen, and then hit the special function keys that set the margins and the wrap that you want to use. This is done in the beginning in order to activate these commands. Later on when you are satisfied with the default settings you have chosen, you can save them permanently in EDIT19.ABS by using the command DEFSAVE<RTN>.

To call a file from any drive on your system, type FN. Example: FN SY1:SCREEN.DAT<RTN>. The SY1:-SCREEN.DAT will drop into a slot on line 25. To get the file to come up for editing, now type READ<RTN>. This command will be issued on line 24. After typing READ, the file comes up in EDIT19.

If the file is a one-or-two-page file, you don't need the LARGE switch. However, if the file is larger, such as 50 sectors or more, you must enter "LARGE." If you don't type "LARGE" you will not be able to get the editor to load the file you want to edit. When "LARGE" activates, EDIT19 dumps all overlays, and then reloads them. You are still in the COMMAND MODE. After you type "LARGE," then type READ DVn:FILENAME.EXT<RTN>. Your file will then come up into the editor and you will be ready to start editing.

CAUTION

Do not use the macro SETKEYS.MAC furnished with the EDIT19 disks, as my settings are more practical. When you use "LARGE," do not try to move about the file in a big, fast hurry. As you use LARGE, the program shuffles back and forth to and from the "scratch files" that it creates. During this time, it is best to patiently wait for it to finish. If you try to move around too fast, you will be injecting a series of characters into the file.

Now that you have loaded the macro, SETKEYS.-MAC, and tapped the applicable special function keys, press ERASE and you will be in the SCREEN MODE. Prior to beginning to input data to the file, first press SHIFT-IC to set the "INPUT" mode. At this time the legend "Input" will appear in inverse video on the 25th line. This "Input" mode enables the "wrap" feature. If you are not comfortable with the margins or wrap point, you can always override the initial settings, either by hitting one of the special function keys with a different margin, or by hitting the ENTER key from the SCREEN MODE and then typing: MARGINS n m or WRAP n. CAUTION: Every time you enter the COMMAND MODE and then return to the SCREEN MODE you will have to hit SHIFT-IC to re-enable the wrap.

HANDLING FILES LARGER THAN THE 64K BUFFER. Assume that you are in the COMMAND MODE and you want to edit a file. A medium-sized file (about 40-50 sectors) that you are planning to edit may give you "out of space" problems, if you do not have the "LARGE" command activated. To activate LARGE, just type LARGE<RTN>. Then type FN DVn:FILENAME.EXT<RTN>, toggle the ERASE key, and begin editing.

There are two procedures that will enable you to edit large files above 500 sectors. First, prepare a new disk and copy only EDIT19.ABS and overlay files on it. Assuming that you use an 80-track disk initialized to 16 sectors per track, this will provide about 2000 sectors available on SY0: which will enable you to handle those extremely large files from 500 to about 1500+ sectors. It is necessary to have this amount of free space so that the editor can create "scratch files" on SY0:. These "scratch files" are part of the file being edited, and must be fit into a space slightly larger than the file to be edited.

Second, if the file is greater than 1000 sectors, you can READ in one segment of about 500 lines at a time and edit it. When done, you may WRITE that segment to disk and then call up another segment until the entire file is completed. Since these segments must be sequential, it is recommended that you take notes of the segments. For example: the first segment consists of line 1 through line 500, the second segment consists of line 501 to 1001, etc. You must know exactly where you are at all times. The alternative is to destroy or damage the file.

EDIT A FILE. Let's take it from the top. You type EDIT19<RTN> at the HDOS prompt and it makes itself available. You get into the COMMAND SCREEN. You type LARGE<RTN> to so that you can handle medium to large files. You type MACRO SETKEYS<RTN> to provide you with easily accessible features, such as margin, wrap point, etc. You type FN DVn:FILENAME.EXT<RTN> and the device and filename that you want to edit appears and drops into the slot on line 25. Then you type READ<RTN> and the file comes up. You hit the ERASE key and then the SHIFT-IC key, and you are good for several hours work in editing your file. From time to time you hit the RED key to SAVE your work while you continue editing. Finally, you are done.

Now you check your file for errors one more time, and are ready to quit. You hit the ERASE key

and go to the COMMAND SCREEN. Check to see that the correct device:filename.ext appears in the designated slot.

CAUTION

At this point BEWARE!!! If the appropriate filename does not appear in the designated slot, you may lose the file! A little carelessness at this time could result in losing your file. Then comes the "weeping and gnashing of teeth." The best solution to this nasty problem is to check for and insure the presence of the device:filename first, and then to send it out.

To send the file to disk, simply type FILE<RTN>. Since you have been saving your file several times as you go along, EDIT19 will question you: "File Already Exists, Are You Sure?" Just type a Y and then your file will be sent to the disk, but you will still be in EDIT19. Note that your last filename, etc. remains in the slot. If you want to continue by editing another file, just type FN DVn:FILENAME.EXT<RTN> and the old dvn:filename will be replaced by the new dvn:filename etc. To call up the new file into the editor, type: READ DVn:FILENAME.EXT<RTN> and begin again.

If you desire to QUIT the program at any time, while in the COMMAND SCREEN, type either QUIT or CTRL-C. CTRL-C queries: "QUIT?" QUIT does not query, but immediately places you at the HDOS prompt.

(Continues next issue. -Ed.)

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Doing Math with QUERY!3's CALC Report Generator

By Kirk L. Thompson

As you probably know by now, I use Hoyle and Hoyle's **QUERY!3** database package to maintain **Staunch**'s subscriber list, as well as a number of similar applications. One of the reasons why I bought it was because it was and continues to be the most powerful database package available for HDOS. A factor behind that power is the optional report generator (CALC). Among many other things, the latter lets you perform math functions inside your reports.

However, the report generator isn't the most "friendly" environment available for developing math applications. Although equations must be pre-defined much like functions in Pascal, setting them up is not easy even if you have a background in a language such as Pascal. So here I'll provide some guidance for you by discussing two specific applications I have running: an income and tax summary report (which prints income and federal and state taxes by year from a database and computes percentages and averages from that information) and a method for accumulating quantities or counts for printing in the summary section of a report (in my case, the number of subscribers signed up through which years of this newsletter).

My emphasis here will be on how to do the math. I presume you already know how to prepare a report generator command file for CALC. I also won't specifically discuss two of the math operators that the generator supports, square root (SQRT) and absolute value (ABS); my applications here don't require them. And what I describe should apply to both HDOS and CP/M versions and **QUERY!2** as well as **QUERY!3.**

A Tax Summary. This particular report takes data from a nine-field database (two-digit year, income from W-2(s), federal gross, tax paid, refund, state(s) of residence for that year, state gross, tax paid, and refund). With this data, it computes what percentages the taxes paid are of the gross for both federal and state, sums each of the amount fields through the years, and figures the average refund for the period. Of course, all this comes out of the printer as a nicely formatted table.

The calculations break naturally into two groups, those performed each year (the percentages) and the rest (sums and average refunds) which are produced at the end of the report in the summary section. Because CALC requires that most computations be predefined in the "DEFINITION" section, equations for both groups must be detailed well before they are used. My definition section for this report, excluding printer codes, looks like this:

```
D                    ----->    S6=F8
D1=(F4/F3)*100       |         S7=F9
D2=(F8/F3)*100       |         S8=D1
S1=F2                |         S9=D2
S2=F3                |         A1=(S2/S1)*100
S3=F4                |         A2=(S7/S2)*100
S4=F5                |         A3=S4/#
S5=F7                |         A4=S7/#
S6=F8                |         E
S7=F9          ------
```

The first two computations (D1 and D2) use what the CALC manual calls "defined fields." These particular calculations may be printed during **each pass** of a record in the file. So here I'm figuring the percentages by dividing the federal (F4) and state (F8) tax paid fields by the federal gross field (F3) and multiplying by 100 each time CALC processes a record.

Further down, in the "MAIN BODY" section, when I wish to print this computation, I have:

```
DD1/1*5/10.2
 . . .
DD1/2*5/10.2
```

But the syntax for this print command is a bit peculiar. The first character ("D") is the command to print a specific field. The next four characters define which field is printed; the second "D" is necessary here because I want one of my "defined fields" rather than one from the working (W) or a constant (C) database. But the following character ("1") threw me for a while. This is **not** the defined field number, as I've specified it in the definition section, but a "record" number. If I were pulling in more than one record per print pass, as would be the case when doing two-, three-, or -four-across self-adhesive labels, the **record** number (1 through 4) for that pass would go here. But since I want a single-pass predefined field, this digit remains "1" all the time.

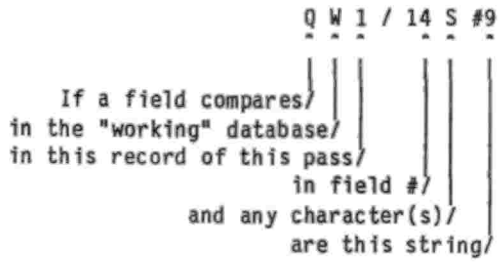
The digit **after** the slash is where I enter which of the two predefined fields (1 or 2 in this case) I want printed. And the trailing characters starting at the asterisk tell CALC how I want the numbers formatted as they are printed. Here, this is as a right-justified number in a 10 character-long field with rounding to two decimal places.

The remaining predefined equations above, Si's and Ai's, can only be printed in the "SUMMARY" section of a report. The Si's automatically keep a running sum of a field, whether from a record in the database or a predefined field. You'll see above that I'm doing both. F2 through F9 are the fields from the database which are individually added together during each pass through a record. But S8 and S9 are a little more complicated. In these two cases, the calculation given by my defined field equation is performed **first** by CALC, than summed as each record is processed.

Finally, the Ai's are called "defined answers" in the manual. Since I want some calculations based on the field sums I've accumulated, I must use them since defined field calculations can't use sums. Like defined fields, these are reasonably straightforward equations. A1 and A2 figure percentages from the respective sums, while the last two divide two sums by the total number of records (#) in the database. I might add that printing these in the summary section of the report is simply a matter of giving their respective names (S1 through S9 and A1 through A4) followed by the same format code I gave above for DD1/i.

Incrementing Counts. The report above was developed about six months after I received CALC and originally written up in **OMAHUG NEWS** back in '86. But lately, the publication of this newsletter has forced me to push further back the boundaries of my ignorance of this versatile report generator. This is mainly because I wanted totals from **Staunch**'s database of how many subscriptions expired which years. This proved as much of a challenge as the rather complicated report above, even though at first glance it seemed easy.

The trick in this report was to individually pick out the conditions I wanted sums of, then set up an accumulator. The conditions are no-nonsense because CALC includes an operator for that, "Q". This command could be diagrammed as follows:



If the comparison is true, the subsection between the conditional command and the next "E" is executed.

But coming up with an accumulator wasn't so easy. After considerable experimentation, I arrived at the following "twisted" logic:

1) Zero a variable (any character between A and Z) on entry to the main section, for example, :A=0;
2) Assign one (1) to the variable if the conditional is true, that is, :A=1;
3) The value of this variable must now be picked up by a defined field (D1=A) given in the definition section because sums (Si's) can only access working database and defined fields;
4) Now sum the defined field (S1=D1);
5) And finally print (S1*5/5.0) as a number in a five-character field rounded to a whole number in the summary section.

I also used a defined answer (A1) to be sure there's nothing wrong with the database file by subtracting the different sums from the total number of records in the file (A1=#-S1-S2-S3-S4). This "count discrepancy" at the bottom of the display **should** be zero, otherwise there's a problem in some of those fields which contain **your** last issue number.

Here's the substance of my command file:

```
D       ;DEFINITION section
D1=A
D2=B
D3=C
D4=D
S1=D1
S2=D2
S3=D3
S4=D4
A1=#-S1-S2-S3-S4
E       ;end DEFINITION
M       ;MAIN section
:A=0
:B=0
:C=0
:D=0
QW1/14S#9
:A=1
E       ;end "#9" conditional
QW1/14S#15
:B=1
E       ;end "#15" conditional
QW1/14S#21
:C=1
E       ;end "#21" conditional
QW1/14SN/A
:D=1
E       ;end "N/A" conditional
E       ;end MAIN
S       ;SUMMARY section
BTotal records processed:
X8
#*5/5.0
N
BNumber of subscribers from '88:
X1
S1*5/5.0
N
BNumber of subscribers thru '89:
X1
S2*5/5.0
N
BNumber of subscribers thru '90:
X1
S3*5/5.0
N
BNumber of "N/A" subscriptions:
```

```
X2
S4*5/5.0
N
BCount discrepancy (if any):
X6
A1*5/5.0
N
E       ;end SUMMARY and report command file
```

I have two permutations of this, one embedded in the report file that prints the newsletter database and a stripped-down version (identical with the listing above) for "on-line" use after conversion to an .ABS program with AUTOPRO. The latter is there to summarize the status of the database and I send it to the CRT rather than printer. Processing takes about one minute, even on RAMdrive at 4 Mhz.

Conclusion. One thing I realized while wrestling with these two reports is that you must understand how CALC performs its calculations, at least in a general way. During each pass, it **first** executes the calculations in the main section (between M and the E just before S in the listing above). **Then**, when the pass through the record is complete, it performs any calculations in the definition section pretty much in the order you've given them. In my case, that's defined fields, sums, and defined answers. Once you've grasped that, you have a key to doing rather marvelous math with this report generator.

Software source:

Hoyle and Hoyle Software, Inc.
111 Sparrow Drive
Isle of Palms
SC 29451
Phone: 803-886-5802
QUERY!3 DBMS $99.95
QUERY!3 CALC $49.95
Available for CP/M, HDOS, and MSDOS

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MISCELLANY

KEYMAPping Magic Wand. [From Hank Lotz, Pittsburgh, PA] "Happily, Bill Derby's UNKEY [see this issue's letters' column -Ed.] sounds like it fills a definite void in KEYMAP's resources. However, regarding his EDITX, I contend that KEYMAP [from HUG] **is indeed** compatible with WAND's EDIT, and to a very useful degree, via a little trick of my own invention! Sure, WAND usurps the function keys--ah, but **not** KEYMAP's second (SHIFTED) set! You can configure KEYMAP to use, say, f5 (a key rarely used in EDIT) as a KEYMAP SHIFT, to avail yourself of often-typed strings within WAND's EDIT. Do not try to reconfigure a copy of KEYMAP you've previously configured; you must use a **copy** of the **distribution** KEYMAP. During your setup of KEYMAP, just hit RETURN to default each function key to its normal escape code. When KEYMAP asks you for the FUNCTION SHIFT key, hit f5. Now, when KEYMAP asks for definitions of the **SHIFTED** keys, enter any useful strings you wish (e.g., often-used words like "however", "computer", etc. You can also use common command-screen entries!). Answer Y when asked if you want the keypad shifted (but this may also work if you say N). Load this newly configured KEYMAP and **then** run EDIT. You will **still** be able to use the f keys **as usual** for EDIT's normal functions! When you want one of **your** programmed strings, hit f5 first, then the appropriate function key, whether on the top row OR the keypad! After that all f keys revert to WAND functions until you hit f5 again. And we do **not** even lose WAND's use for f5 (the formfeed)! **Just put f5's original WAND code, ESC W, on f5's** SHIFTED position! **WAND's** f5 is then accessible by hitting f5 **twice.** You can even enable KEYMAP's 25th line; so far I've found no instance of EDIT using the 25th line! [Neither have I in PeachText. -Ed]

"While we're on KEYMAP, another conflict I found (long ago) exists between KEYMAP and DDT. This incompatibility results when KEYMAP is installed below the CCP, and is insidious because it doesn't get **really** crippling until you run DDT a good number of times. DDT wants to nestle below the CCP but since KEYMAP is there, DDT goes beneath KEYMAP. The **next** time you run DDT it loads below its **previous** load position, and the next time, below **that**, and so on. After a while you have little or no TPA left! I always unload KEYMAP before I run DDT!"

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