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H8SCOOP

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BITS & PIECES

I'm finially getting caught up at H8SCOOP headquarters. Every day I am more satisfied that I choose the H8 computer. Talking to my local HUG, the H8 is more alive than ever, and things are really happening fast. Soon the H8 will make the TRS-80, Apple and others look like toys. Those who have purchased the H8 and stuck with it, despite some rough times, will NOT regret it.

HEATH TO RELEASE SOURCE CODE

As mentioned in May H8SCOOP, Heath is now releasing the source code for the cassette editor (H8-53), Basic (H8-60), Debugger (H8-52), and the Assembler (H8-54) at $25/listing. The HDOS disk listing is also being released for $195 (HOS-1-SL), which includes all the above plus PIP and other utilities, including device drivers. I don't think comment statements are included in the listings, which will make a lot of deciphering necessary. BASCON and TXTCON are already available from HUG.

To be offered also will be the ROM codes for the H17 (H8-51) and H19, H19-1. Contact Heath for more information on all the above.

Back to the MSM 5832 clock chip, it can be obtained from yet another source, Digi-Key Corporation for $9.80, which includes a data sheet. Their toll free number is (800) 346-5144.

Donald Long has almost all the parts for the Clock board. Last month's H8SCOOP reported they should have all been ready, but manufacture delays have made this impossible. Hopefully I'll have a report on this design by Donald next month.

TED MIESKE STILL LIVES

If you have been trying to write Ted Mieske in Texas and have not received a reply from him, just hold on! He is still around, only not in Texas. He ate too many H8's and the heat got to him. Really, He is in the process of moving back to California, and has been spending all his spare time(what's that?) getting packed and making moving arrangements. As soon as he gets settled in California, he will get in touch with those left stranded, so hold on.

Ted's new address is 4848 71st. St., San Diego, CA 92115. His phone number is (714) 460-4132.

WHICH DISKETT?

It appears that there is a widespread opinion on which diskettes to use. I have received the majority of reports saying MEMOREX make too much noise and people are afraid to use them because the're afraid the "heads are slowly being worn away". I must admit, lot of my MEMOREX disks do sound like sandpaper rotating in the jacket. On the other hand, I have individuals that will not accept VERBATIM disks, due to failure rates, yet others swear by them. I stand in the middle on this issue. In all the time I have used the H17, which was from its introduction, and many hours each day, I have only come accross one bad disk, and that was a VERBATIM, And I'm stepping my drives at 6ms.

It is reported that Nashua Corporation is comming out with a diskette which is of excellent quality. When it rotates in the jacket, you can't even hear it. When they will be available, or the price, I don't know.

LIFEBOAT AGAIN?

I received a copy of "LIFELINE" which is put out by Lifeboat Associates. In this particular issue they were rating Digital Research's CPM and Microsoft. Both were really cut down as to their service and customer relations. It was amusing to see how they rate others, and how they themselves are rated as far as customer relations(see June and July H8SCOOP). I quote from a paragraph from LIFELINE. "We at Lifeboat hope that we can measure up to the standards we encourage the users to demand. . .".

I also received some feedback from an English computer magazine, PERSONAL COMPUTER WORLD, on Lifeboat. I quote "The Software Supermarket, as program distributor Lifeboat calls one of its manifestations, has followed the good practice of other supermarkets, and is selling magazines at the checkout. Like the magazines that you will find at the Safeway checkout, this one, called Lifelines, is not unconnected with the business: "Each month," says Lifeboat very candidly, "there will be a table listing the array of serious CP/M compatible software products distributed by Lifeboat Associates." It's a catalogue, in fact. This publication costs $18 for twelve issues in North America, $40 elsewhere, and $2.50 for a single copy.

There's nothing wrong in selling one's catalogue, or in making it look as interesting as possible. Calling it a newsletter when it's a catalogue,

however, is pushing credibility a bit harder than the buffers will stand. Calling this the 'official organ of the CP/M users group' doesn't excuse it. The only real useful information is contained in a section called BUGS-errors and fixes in Lifeboat supplied software. In my version of business ethics, you notify your customers of faults in your products at your own expense, not by making them pay for your advertising. The faults, after all, shouldn't be there in the first place."

I found that quite interesting, it seems the more I hear about Lifeboat, the more convinced I am to stay away from PURCHASE of CP/M stuff. That clipping, by the way, was supplied by my overseas friend Tor Tverre, in Norway.

Tor tells me, he purchased a disk drive and it didn't work. The felt pressure pad had come off and was lying inside the drive. After finding it, he glued it on with epoxy glue, and it has worked perfect ever since. Seems like a quality control problem on the new drives!

Tor also told me he has been waiting over 2 months for the latest advertised mods from Northwest Computer. Upon writing them, they say it should arrive shortly, which it has not yet. Tor says "To me it looks like they have fallen in the old trap, advertising before the development work is finished and then run into problems. This is a shame, they started out so well. In my opinion, I do not think people mind waiting as long, just so they are being told why, and when they can expect their goods."

I know, I have had an IO-4235 scope on order from Heath since early June. First, they said shipping date would be June 24. Then my next slip said July 11. My lattest says July 25th. I received the same deal when I ordered my first H17 setup long ago, I waited months, and each few days, another card would come telling me it would be here shortly!

George Duke tells me he installed the 24 line mod in his H9, and now his local Heath store in Miami Flordia will not take it in trade, saying it must be converted back to original configuration "or no deal--company policy." I don't know, check with your Heath's. My local took mine in trade for my H19, and it had the mod in it. But thinking back, they told me last year they would not! But now they have new management,and things are really shapping up there! It sounds like Miami needs new management.

As to the requests of how to convert assembly language programs from the TAPE system to DISK, HUG has out a package called "TMI LOAD" for $18. This will allow such things as the TAPE assembly language GAME TAPE to be converted and run on the H17 Disk system. However, HDOS envoirnment is terminated when the program is run, and it is necessary to re-boot after playing the game.

Rumors have it that Heath will be comming out with an A/D converter circuit for the H8 in the near future. I also have heard that the H8 may shortly have the presently reserved lower 8K "relocatable" anywhere the user wishes ,thus if desired, it could be placed at the top of memory. This would make the lower 8K available, and things like standard CPM and Microsoft Basic could be run directly on the H8. See NEW STUFF.

RUMORS also have it that Heath is going to possibly drop the H14 and come out with a new line printer, H25, which is supposed to be a high density matrix printer with graphics, selectable type fonts, and the whole works.

I erranously reported in the July H8SCOOP that the 3rd drive for the H8 was the H88-6. This is incorrect, as the H88-6 is the backplate mod for the H88/H89 to bring out a brightness control and other things, on the back of the H88/H89.

Jim Czebiniak reports when using BASIC, you do not need a semi colon(;) between items. I have found sometimes yes, and sometimes no, more YES when running MBasic. To play it safe, I always use them. This way, if future BH Ext Basic is ever changed, all programs are safe. I'd sure hate to have to go through all my BASIC programs and find and change all the PRINT statements. But you may find this a helpful tip.

Rumor has it that there is a totally new Disk Operating System being readied for release by an independent software house, for the H8. That's all I know about it, but watch for it.

California Digital, POB 3097B, Torrance, CA 90503 (213) 679-9001 still has the diskette offer of 10 Memorex hard sector diskettes(10 holed) WITH A FREE plastic library case — $24.95 + $2 shipping. If you need disks, stock up soon. I don't know how they are doing it, but don't miss out on this buy. Terry of California Digital also informs me that they have the ever popular 4116 dynamic RAM memory chips for a price of $49 per set of 8. This is another LOW price, so take advantage of it while you can.

NEW STUFF

BIBLIOGRAPHY UPDATE

Kilobaud Microcomputing pulls through again! The July 1980 issue had several H8 related articles this time. For the Cassette users, Page 81 contained an article on how to double the baud rate from 1200 to 2400 for transfering data to and from the cassette recorder to the H8-5 with a simple mod which requires only minor wiring and a switch to select between 1200 and 2400, requiring no additional parts. The article says it's quite reliable. Author is Ronald Baker.

Another one, by James Teixeria, is a line editor for Benton Harbor Basic. For those who have used Micro Soft Basic, the built in line editor is quite a handy feature when one wishes to change part of a line. Benton Harbor Basic, does not support this, but the article starting on page 126 tells how to implement this feature. It is a simple assembly program for use with TAPE basic.

A two part article by Myron Siebold is a 64K memory for the H8, which will be continued in the August issue of Microcomputing. It starts on Page 90, and gives the background for dynamic RAM memory, and its interfacing to the H8 buss, along with schematics. The August issue will continue the article with construction, operation and troubleshooting of the memory board. This is definitely NOT a beginner project, but it contains useful information on the H8 buss and Memory interfacing.

Page 19 has two short blurps on the H14, light print copy which author Howard Dempsey suggests ribbon replacement with a cotton Teletype ribbon (Nu-Kote B72). Another by T. Prewitt talks of a problem of the H14 refusing to preform a line feed after many hours of printing. He states that paper fibers and punch outs from tractor holes may collect in the paper feed path and block the photo transistor which monitors the movement of tractor holes in the left edge of the paper, which normally detects paper jams.

Personal Computing, October 1979 had an article on BASIC renumbering of a Disk basic program by Charles Ballinger. Chuck also informs me that the September issue of Interface Age is supposed to run an article written by Chuck on CPM vs HDOS--Which Way to Go? Since there have been many individuals writing in asking me, we look forward to seeing Chucks article in Interface Age. Since I do not run CPM, I cannot give an accurate opinion.

Novation, the CAT people, now have out a new microphone for a standard telephone which will greatly improve MODEM operation. It is intended to replace the carbon microphone the handset is equipped with. It costs $9.95 and is obtainable from a Hamilton/Avent distributor, or by mail from Novation Inc., 18664 Oxnard St., Tarzana, CA 91356. They will accept credit card orders over phone, a toll free number, 1-800-423-5410.

Bill Hall, 5621 Maple Heights, Pittsburgh, PA 15232 has available for the H19/H89 a two page summary sheet for the terminal features, which is placed in a plastic cover. It contains the system configurations of S402 and S401, Cursor Functions, Escape codes, Alternate Keypad Modes, Special Function Keys, and a chart of ASCII Characters in Octal, Decimal, and Hexidecimal. The price on this is $5, which includes postage and handling.

I have a report that DG ELECTRONICS is working on a system modification, which I presume is software, which will allow the H8 to work at a 4Mhz rate instead of the usual 2Mhz. They have the new Z80 board out which will operate at 4Mhz, but up to now, it would screw up HDOS. They are also reportedly working on a mod which will allow the H8 to run STANDARD CP/M, instead of the modified version now required. I also have reports that DG is top notch, and their 32K board, and their Z80 board are both top quality.

Sources say DG is also working on a new EPROM for the DG-80, the Z80 board.

Heath now has available the PAM-8 GO chip for disk users which allows booting the H8 for disk simply by pushing the GO button. It's the H8-9 for $20. The H8-10, wirewrap card is now available for $30, and FORTRAN the H8-20 is now available for $150 which needs two drives to operate. Don't get too excited about this FORTRAN until you get all the details. I was told by a user that the code it produces is VERY LARGE compared to a typical program, which means much memory and disk are needed. Is that why 2 drives are required? If that's the case, I think I'll pass it up. But don't take my word for it--YET. I'll try to have more info on this next month.

The HCA-6 is a wire wrapping kit for $12.95 which contains wrapping tool, 50 feet wire, and pre cut stripped wire of various lengths. To go with that is the HCA-7, a wire wrap socket kit which contains 36 IC sockets for 3 level wire wrapping.

For the H19, two new screen filters are available from Heath, the HCA-3 for $8.95 which is a pannelgraphix CRT filter to make video displays of the H19 easier to read, and the HCA-4 for $19.95 which is nylon anti-glare to make the display stand out more and reduce eye strain.

Not new, but better priced is the WH-8-16, wired 16K memory board which went from $395 in the last catalog to $299 in the FALL catalog.

Got CPM? Heath now has available a PASCAL system to operate under CPM, which consists of 5 disks and much documentation: It looks pretty good, if you're into PASCAL. I beleive the price is around $250.

I saw a chip mod for the H8 with a small circuit board to relocate the lower 8K area that is presently used by PAM-8 and the H17. This mod will allow you to ORG programs at 000.000, which would be real nice for CPM and other things. This will make the H8 more compatible with STANDARD CPM's, FORTRAN's and the like. I beleive it is put out by Magnolia. Check your local HUG, they may have info on it.

COBAL? Maybe. Since a course is offered by Heath, EC-1105 for $119, I would assume that the COBAL compilier is comming next. This is an excellent language to learn, especially if you desire to go into programming, since many businesses make use of it. I sure hope this course does not turn out ANYTHING like the ASSEMBLY language course.

From one of the good guys, Greg Saville, 2345 Balsa St., San Diego, CA 92105, comes a small sound board to fit inside the H8, using the ever popular PSG chip, the AY-3-8912 (which is the small version of the AY-3 8910). This is an amazing chip which brings total sound control to the H8, plus a parallel I/O port to boot! The AY-3-8910 gives you the same, only 3 parallel I/O ports.

Anyway, music with 3 parts can be played through this thing, plus the production of practically any imaginable sound. If you're into music systhesis, this board will probably fit your wants. You can control the volume and mix of each of 3 channels individually, which are mixed down to one channel in the hardware circuitry. There is no reason why you can't use this board for STEREO if you desire, simply by going to two amps and not mixing all 3 to one.

The kit went together very easy, taking only about an hour. The only word of warning I want to pass along, is be sure to clean the copper side of the board with emery cloth, or fine sandpaper, since it is oxidized quite a bit. It is not the typical plated board you get from Heathkits. If you do not do this, you'll find soldering to the board impossible. All the sample programs included with the documentation are written in B.H. EXTended BASIC, so this should pose no problem. This will work equally well with the tape system, or the disk system, just so you have a slot left open for it in the H8. It uses addresses 000 and 001, so these must be available. For those of you who are running my 16/32 channel ON/OFF controller project, this also uses these addresses on the parallel card, so be sure to change this to some other value on the H8-2 card, I changed mine to address 006. Be sure you also change software accordingly.

Greg told me if you include a blank disk, or send an additional $5, he will include the software on disk which includes all the test programs included in the documentation, so you can get up and running right away to check the thing out. Cassette users will have to enter all by hand. As a bonus, the diskette also contains a PSG developement program in BASIC, in which you can set the parameters in real time and create your own sounds, and then if you like what you hear, store them to disk, quite a nice program.

Greg's prices--kit with documentation, which does require an audio amplifier, $49.95. On board IC amp option, which includes speaker $9.95. Bare PC board with documentation, $14.95. For more information, or to place an order, contact Greg. He says if there is any trouble with the kit, you can call him for help, or return it, and he'll get it going, same warranty as Heath.

REQUESTS

Charles Ballinger wishes to find the routines in the ASseMbler to prevent the error line and assembly comments at the end of an assembler program listing. Charles says the assembler will skip to a new page, but be 3 lines off on the very last page. He would like to know if anybody knows where this occurs, or/and how to correct it. Anybody dissassemble the assembler? Charles, see Bits and Pieces on Heath's Source Listings! Get the assembler source code, and do whatever you want with it.

Rich Green(address in classifieds) would like some help from CPM users. This problem exists when he runs CBASIC-2. CRUN2, the runtime program will intermittently give an OM error message

with over 14K free memory available and crash the program. There is no recognizable pattern to this problem, only that it is sure to happen in just a very short time. Setting TRACE when using CRUN2 shows the OM crashes to occur only when strings are involved (eg. strings in loops, string arrays, strin functions like left$(, MID$(, RIGHT $( ).

Rich also is subscribing to MicroNet. Contact Rich for info on it.

Rich wants to know if anybody is experiences more disk crashes with MBasic than BH BASIC. I know I'm not. I suggest Rich, you read the Technical Forum in May H8SCOOP. Also try removing and reseating all the boards in the H8, I once had a problem similar, and that solved the whole problem.

Bengt Thorson, S-51020 Fristla, SWEEDEN would like to know if it is possible to have text appearing on the console TT when being listed to a line printer or alternate terminal. It would seem to me this could be taken care of in software if the device driver listings were available, which they now are from Heath. Tidewater Software, POB 4465, Virginia Beach, VA 23454 also has available device drivers with the listings, which contain generous comments, which I don't think Heath's do.

My guess is that by setting a flag in the beginning of the driver if a dual listing is desired, when an OUT is being preformed to the LP port, an additional OUT to the console TT port would send the same characters to the console TT, since the "A" register still contains this ASCII bit. This would have to be inserted right before the OUT to the LP or AT port. And if the flag was not set, the OUT would be jumped over.

This would not appear to be a too difficult task, since the TT is already set up and ready. I will be trying this with my selectric driver to see if it works.

Well, I tried it and it does work. Now whenever I copy anything to my selectric, it also appears on my H19 screen. I will be shortly trying the same thing with the AT:. For those of you who have my selectric driver, here's what to do. Find the line in the assembly listing that says

```
OCHAR  DS   0
```

The next line says

```
PUSH   B
```

After this line, add the following command

```
OUT    350Q
```

That's all there is too it. This simply outputs the ASCII character to the console TT port imediately before it goes to the Selectric lookup table to be outputed to the selectric. If you don't want this feature, simply eliminate this line. Two points. First, port 350 is for use with the H8-4 card, and secondly, the terminal must be set to insert a CR upon LF. With the H19, SW 402 must have position 4 set to "1".

For those that can't figure this out, or are having problems with the Ver 1.6 HDOS update, send me a blank disk and $3, or 2 blank disks, and I will return to you the complete driver with necessary ACM's and all fixes needed for the 1.6 update, and the print to console mod.

PROGRAMMERS JOBS AVAILABLE

I wasn't sure what column to put this under. There are two good job openings available for programmers for a medical instruments manufacturer in New York. They need a senior level programmer with experience in INTEL 8080 Assembler programming. This job pays to $30K. The second position is for a junior level FORTRAN programmer to support general programming of a small computer facility. It pays to $20K. If interested, or for more info, contact Mr. John Moorhead, VP, of Paul Norsell Associates Inc.,9841 Airport Blvd., Los Angeles, CA 90045. Call collect (213) 645-7751 or (213) 776-7343.

WHO'S WHO

Steve Kopp, 5549 Princess Anne Road, Virginia Beach, VA 23462 is interested in contacting other Heath User Groups and individuals to exchange programs and other ideas. Steve is the President of the Tidewater Heath Users Group (THUG).

GOOD GUYS and BAD GUYS

*****BAD GUYS--TERMINAL DATA CORP. of Rochville, Maryland. Bill Hall writes in that they make a number of RS-232 data dividers. They go for way too high a price for what they are, a couple of blocking diodes, complete with lousy documentation. Bill says it's the first time he's really been ripped- off in the computer business. I agree with Bill, companies that are out to make a quick buck at the expense of computerists, shouldn't be around. If you thought that was bad Bill, you should buy something from Q Kits.

*****GOOD GUYS--WALTER BILOFSKY and his software. See previous H8SCOOP's for info on Walt's software. I have heard from

several sources that he has top notch software, and knows what he is doing. Since I plan to do a report on Walt's stuff next month, I will not get too heavy here, suffice it to say Walt can be depended on, and his software is reliable and worth the price. His PIE editor, for instance, for $25 is reported to be well worth the price. His AIRPORT game "ranks right alongside ADVENTURE". Walt has put lot of effort into his software, and keeps right on going. I am curious to see what WALT is going to come up with now that the SOURCE code is released for HDOS.

CLASSIFIEDS

FOR SALE--Two Heath 8K memory boards at $75 each, and ONE Godbout 12K board for $80. Mr. Brian Hansen, 315 Roast Meat Hill Rd., Killingworth, CT 06417. (203) 663-1425.

FOR SALE--WH14 in excellent condition, used less than 2 months. It is factory assembled, and contains the paper advance motor mod, WH8-41 cable, and will be shipped prepaid. $600. Contact Rich Green, 2124 Rock St. 37, Mt. View, CA 94043. Call after 3PM (415) 964-8438.

FOR SALE--HAZELTINE 1500 video terminal. RS-232 and 20mA interface, BAUD to 19200, Numeric Key pad. BLACK screen. This is a professional terminal, and the touch and screen contrast is FAR superior to the H19. Since I got my H19 to be compatible with Heath users, I have no use for an extra terminal. Complete with user manual, and full maintenance documentation and schematics. This IS NOT a graphics terminal. $680, shipp-ed UPS prepaid. Contact Henry Fale of H8SCOOP for more info.

TECHNICAL FORUM

MORE STILL ON HDOS 1.6 AND THINGS

Jim Brake announced at an Indiana HUG meeting that the problem with the INIT function on disk(see JULY H8SCOOP) under HDOS 1.6 is being worked on, and a fix is underway.

I have been told that if you take an old 8K board and strap it for 4K at address 0, you can use the 3K memory above the PAM-8 which now occupies the first 1K memory. PAM-8 only disables the first 1K when being talked to. This would give an extra 3K RAM for assembly programs, or whatever else you may want to experiment with.

William Velten says if you are having problems getting disks to work with HDOS 1.6 that had the old versions on them, INIT does not kill all the old files. Do a TEST and run a MEDIA CHECK, then re-initialize. They then work fine.

On the same problem, Ted Mieske says either use a VIRGIN disk, or BULK erase the disk.

A problem discussed in earlier H8SCOOP about disabeling the form feeds for the H14 line printer, submitted by James Czebiniak, has yet another solution. James also turned in this solution, given him by Heath. By patching the following locations in the LP: device driver, the feeds are disabled after each run of a BASIC program or whatever. PATCH the following:

```
ADDRESS 002203  315 to 072
        002204  171 to 000
        002205  003 to 000
```

Since I do not have the printer, I have no way of verifying this. If you have any questions, contact Jim, who's address is in previous H8SCOOP's.

A question was also asked on how to get a line feed or form feed in text with the text editor when using the LP: and the H14, so when a text file is finished printing, the H14 goes to a new sheet of paper automatically ready for the next text. In BASIC, you simply output the FF, but you can't do this in the editor. Any ideas?

Last month a patch was given for SUBMIT to upgrade it to HDOS 1.6. Another program for making a Disk Catalog Listing, CLIST also was reported not to run under 1.6. The patch for this is to change address 057.113 from 012 to 010 for CLIST.

For those of you who like to play with the H8/H17 and see what is happening, here's some address locations you can look at from the H8 front panel to see what's going on. Location 040.275 contains the number of disk writes preformed since last boot, while 040273 contains the number of disk reads since last boot. These are the same values used when a STATUS report is given by the computer, except remember they are in decimal on the console, and octal on the FPLED's.

Here's a really neat one I wish did not exist. After the disk drive is accessed for a read or write, and is finished, it spins and spins and spins. Maybe Heath is in the drive motor/bearing business, I don't know. In any case, I call it planned obsolescence, since the drives are rotating more in between reads and

writes, than for the actual reads and writes. Anyway, address 040.243 contains the countdown disk clock. Watch it on the panel and do some disk activity. After it is all finished with the actual read or write, the counter starts at about 170 and counts down to 000. Once it gets there, the disk drives stop whirling. Maybe the extra rotation times help keeps the H17 cool? If anybody can figure out how to eliminate this, or cut down on the extra time, let me know.

Still another is location 041.061, which is the active disk drive currently being accessed, which will be either 0, 1, or 2. Want to change the disk step time from the H8 front panel? For example, autoscribe comes set for 30 ms, and there's no way to change this on disk. Since I step my drives at 6ms, I hate to wait the extra 24ms required by autoscribe's disk step times. This all adds up. Location 040.115 contains the step for SY:, but note the following:

The display is not the step time, nor is it directly proportional, and that's why I spent lot of time trying in vain to find it. For example, to step at 20ms the display value must be 012.

DISPLAY	STEP
003	6ms
004	8ms
005	10ms
007	15ms
012	20ms
015	26ms
016	28ms
017	30ms

You can watch this address on the FPLED's and change the step times by STEP SY: STEP XX and see what happens. CAUTION: Don't enter a number below 003, as the disk drive will go into the shakes.

The HDOS current date is stored at locations 8383 to 8391 decimal. There may be times you wish to change the date during a BASIC program to reflect the wanted date to updated files. Following is a short BASIC program (or MB) to accomplish this, curtesy of D. C. Shoemaker.

```
40 PRINT:PRINT "THE DATE CURRENTLY
   IN HDOS IS ";:GOSUB 140
50 LINE INPUT"ENTER NEW DATE
   DESIRED (DD-MMM-YY):   ";D$
60 PRINT"THE DATE IS NOW ";:GOSUB 90
70 END
80 REM ** ROUTINE TO POKE NEW DATE
   IN MEMORY
90 FOR J=8383 TO 8391
100 D3$=MID$(D$,J-8382,1)
110 POKE J,ASC(D3$)
120 NEXT J
130 REM RETRIEVE DATE FROM HDOS
   AND PRINT
140 D2$="":FOR L=8383 TO 8391:
   D2$=D2$+CHR$(PEEK(L)):NEXT L
150 PRINT D2$
160 RETURN
```

Try it out if you need something like this. As D.C. says, which is the same thing I always say, "Why re-invent the wheel"?

Another change found in version 1.6 of HDOS is in the assembler. The new version prints out line numbers, which was not supported in previous versions.

Here is some info on using a non documentated feature of HDOS, especially useful for single disk drives. You must have SET.ABS residing on your disk, and this gets pretty spooky. Type in SET HDOS STAND-ALONE wan watch what happens. This can be used to Boot-up with ONE drive on a disk that has not been SYSGENED. PIP and SYSCMD must be on the disk though if you will want to do a CAT/DIR, otherwise just SYSCMD.SYS. To get out of this, just type SET HDOS NOSTAND-ALONE. This gives you more room on disk for programs and data in a one drive system.

Following is a condensed list of some of the things which can be found on the disk using SUPERDUMP, sometimes referred to as SDUMP. It will help you finding some of the secrets of HDOS. If you have SDUMP and wish to find where a program is on the disk, just type SDUMP FNAME and all the Track/Sectors will appear for that program, FNAME being the program file name. If it is a flaged file, enter a /S after the file name.

WHAT	TRACK	SECTOR
ACTION BOOT	0	1
NO SYSGEN/INIT	0	2
BOOT RESTART	0	4
LABEL	0	10
PROLOGUE.SYS	1	3
REQUIRED MEMORY	1	3
VERSION	1	5
VOLUME #	1	6
CORRUPT-CONTACT HEATH	1	7
DATE ERR. MESSAGE	2	1
MONTH INPUT CHECK	2	2
FATAL SYSTEM ERROR	2	5
INSERT DISK	2	9
REPLACE DISK	2	9
PLEASE REPLACE DISK	6	6
VOLUME/LABEL CHECK	6	7
STATUS INFO	7	9
ERROR MESSAGES	8	4
PIP FILE COPY INFO	9	9
FILES/SECTORS USED	10	1
HELP MESSAGES	11	7
SET OPTIONS	11	10
HDOS STAND-ALONE	11	10
LOCK MESSAGES	12	7
BASIC ERROR MESSAGES	13	10

BASIC SIGN-ON MESSG.	19	6
ARE YOU SURE? MESSG.	20	4
DIRECTORY	22	3

Do you want an instant BOOT-UP with out writing a BATCH or SUBMIT file? There is already a feature built into HDOS to take care of it. Simply name any .ABS file PROLOGUE.SYS (ex. RENAME PROLOGUE.SYS=BASIC.ABS), and during BOOT, it is automatically loaded.

If you have this feature and wish to ignore it, when you boot and get the ACTION BOOT? hit the I instead of the return, and it will print IGNORE and go to a standard HDOS boot.

That's it for this month. Due to lot of good info in this issue, I cut out the editorial. That's OK, I'll try to catch up next month. I already have about half of next month's issue in my head.

Next month I will try to print some users impressions, and reports on Walt Bilofsky's software, and GRAFIX mod for the H9. In a future issue I hope to do an article on Word processors or Text editors, since there's so many available. I'll try to have the LA-36 double speed mod and the H9 24 line mod available for distribution by the end of summer. It all depends on my work load here, and how much free time I have available, which up to now, hasn't been any.

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PHONE HOURS: 4PM-10PM Monday, Tuesday, Thursday, and Sunday. No collect calls