

Preserving Our CLASSIC Heath 8-Bit Machines!

The SEETHO JOURNAL

The Society of Eight Bit Heath Computerists' Official Monthly Newsletter

Volume VII, Number 5

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December, 1992

See Last Page for Subscription & Order Blank

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{ HEY, KIDS!  GET OUT YOUR }
{ CRAYOLAS AND COLOR ME! }
{ MY FACE IS PINK, MY EYES }
{ ARE BLUE, MY COAT AND }
{ PANTS ARE RED, MY BEARD }
{ AND COAT TRIM ARE WHITE, }
{ AND MY BOOTS, BELT AND }
{ MITTENS ARE BLACK. MAKE }
{ THE BOXES IN MY RED SACK }
{ ANY COLOR YOU THINK IS }
{ RIGHT FOR THE SEASON... }
{ Merry Christmas to all! }
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Reader's Mailbox

Dear Lenny,

Just got your "double" issue (Oct/Nov) and noticed your complaint about moving files from HDOS 2.0 to HDOS 3.0x, and from HDOS 3.0x to CP/M. I too was disappointed that the development team didn't pay greater attention to the impact of that. The reason for the difficulty is that HDOS 3.0x uses a pair of otherwise unused bytes in HDOS's directory structure to store time-of-day information. If those bytes are NOT NULs (00hex), HDOS 2.0 and most of the popular media transfer utilities gag!

There are two approaches you can take to moving HDOS 3.0x files to HDOS 2.0. Both involve patching with a dump-style utility. For details, check back to STAUNCH #15 and the short items by Terry Hall and Bill Lindley on page 6. On those occasions when I've needed to transform 3.0x files to 2.0, I've used Terry's (admittedly simplistic) approach and found it effective when dealing with just a few files.

Moving files from HDOS 3.0x directly to CP/M is another story. One utility I have, J J Thompson's HOSCOPY, can't read 3.0x's directory, and I gather from your description that the same applies to HUG's HTOC. But there IS one utility which CAN do the job, and I've resorted to it on a regular basis. It even works for soft-sector and (reputedly) 8-inch, which is even better! This is Grant Gustafson's CPH, described in STAUNCH #16, page 2. So you didn't really have to muck around with that pasteup for Allie Lingo's article!

Have an enjoyable Christmas and fruitful New Year.

KIRK L THOMPSON, Editor, The STAUNCH 8/89er, P. O. Box 548, West Branch, IA 52358

[Yo, Kirk! Thanks for all that fine information! Too bad I didn't think to look through all my back issues of "The STAUNCH", it would have saved me a whole lot of cutting and pasting. I'm ashamed to say it, but the computer shack here is Really Messed Up, with papers, publications, disc packs and other stuff cascading from everything onto everything else. (Good thing there's a solid floor, else it would have all sunk into the basement long since.) If I had not been so much under the weather, this place would not have gotten so upsampled! Seems that the minute I get over one malady, something else bubbles up from the swamps to grab me. (The latest thing being bah-humbag Christmas!) But I expect to get everything in order Real Soon Now. What with the 1992 December issue going out in mid-January...I might even be able to get the January edition out by month's end! (Everyone cross yer fingers!) I'm still going through all those discs (see this month's revised list) and expect to be shipping you another batch of copies before month's end. Got your latest double edition last week but haven't had time to really go through and digest it yet...maybe later this week. Meanwhile, if you have a modem, it might be feasible for us to send stuff to each other that way. Probably as cheap as US Snail, and a whole lot faster! And a Very Prosperous New Year to YOU! -- ed]

Dear Lenny,

I read about David Young's H89 booting problem in the November JOURNAL. I've had a similar one with my machine, although a brief warmup period was all mine required. I've attached a copy of my letter sent to Mr Young outlining my reasons for suspecting the MMS 77316 board. I thought this information might be useful to someone else besides him.

Best of luck in '93....

CHARLEY BEJIN, P O Box 2629, Cheyenne, WY 82003

Dear Mr Young,

In connexion with your request for assistance which appeared in the November (92) SEBHC JOURNAL, you might start with the 77316 controller board. I had a similar problem with one installed in my H89. The "MMS:" prompt would appear, but the machine wouldn't boot. After a few seconds, there'd be a beep and the prompt would reappear. But after a brief minute or two warmup, the computer would boot and there would be no problem after that.

Actually, I still have the problem, but I now boot primarily from a hard drive which uses another controller board. I can still boot from the 77316 if desired. On rare occasions I do this if doing some software or other type maintenance on the hard drives. In those cases when attempting to boot from the 77316 with the computer cold, it still requires a minute or two warmup.

I realize that you stated you've had no luck even with an apparently longer warmup, but my reason for suspecting the 77316 goes back to a conversation I had with Brad (I believe) at Magnolia several years ago. He told me they were aware of the warmup requirement before booting off the 77316. They had a fix which required returning the board to them. I can't recall if he said what the charge was, but it's possible your board has gotten to the point where even a prolonged warmup doesn't help.

You might try contacting Magnolia directly. Lenny has included their address and phone number periodically in the JOURNAL. Note that Magnolia's past policy with their H/Z-89/90 products was the customer should contact the dealer from whom you got the defective item(s), otherwise you might have to pay a "consulting fee". Whether or not this policy has been changed I have no idea. In your case it seems, you got your equipment from a previous owner, completely undocumented.

Contacting Magnolia directly seems the only way to get the problem fixed--unless you take a chance on buying a used board. You might even find somebody who is clearing out Real Cheap. But if you send your board to Magnolia, you may be fixing something that's not broke, and your machine still won't work. Of course, if you buy another board, again you risk spending money trying to correct the wrong component.

I sympathize completely with your dilemma. I have several of these old 8-bit machines around the house, some stored, at least four in frequent use. I've bought several for spare

More Reader's Mailbox

some stored, at least four in frequent use, so I just plugged some in and put them to work. I've been using an old, highly-modified H8 for over ten years, and an H89--also highly modified--for at least eight. I'm sitting on pins and needles daily, waiting for the inevitable failure. There are so many things that can go wrong...poor IC sockets, plug connections, failed components, or a million other things. A few quirks have popped up, but I've been able to correct them using information from Lenny's JOURNAL, The STAUNCH 8/89er, & documentation which came with the machines themselves.

So, good luck, and I hope I've been able to give you some useful ideas. Have a good 1993!

/s/ CHARLEY BEJIN

[Ok, there's Charley's letter, chock full (sort of as the old commercial goes) of not-so-nutty information! Now the rest of you 8-bit users sit down and write something equally informative Real Soon Now and send it in for us to publish. You should know by now that our old grey boxes aren't going to live forever without some tender loving care and routine maintenance. The SEBHC JOURNAL does not live by subscriptions alone, it must be fed nourishing articles periodically in order for it to survive. Do your part and keep us alive chums! -- ed]

Dear Len,

Hope you have received my subscription renewal by now, I sent it out about 22 Dec., 1992. [Yep, got here ok! -- ed]

I'm interested in obtaining the following documents in order to fix three letter-quality printers. Any help from you or other SEBHC members shall be appreciated. Even [though] all three machines are fairly old, the manufacturers have all refused to sell me schematics!

List of needed printer documents:

Mfrgr	Printer model	Documents required
Brother	Dynax DX15	Schematic diagram
Olympia	Electronic Compact R0	Schematic diagram
Star	DW-1	Schematic & manual

Wishing you all a Happy New Year at The SEBHC JOURNAL,

JULIAN LOUI, 8 Summer Lane, Framingham, MA 01701

[Yo, ho, ho, Julian! We are unfortunately unable to meet your documentation requirements--we perforce must take our own printers to one of our local computer "fix-it shops" whenever anything goes wrong. Along the same line as your enquiry, we recently got a nice piece of mail from the Epson folks out in Torence, CA, which included a couple toll-free numbers. One (800-922-8911) is for Technical Support/Dealer referral, Product information, Service-center referral, and Customer relations. The other (800-873-7766) is for Accessories, supplies and reconditioned products (a catalogue of these last was

included). To date I've spent over a full hour in trying to get past their utterly-stupid computer phone "non-answering" machine and talk with a REAL person, but with ZERO results! Appears as if Epson/Seikosha is part of the same non-informative printer cabal as those you've listed! Since you didn't itemize what problems you're trying to correct, I'll leave it up to our readers to contact you with whatever help they may have to offer. Meanwhile, do keep the faith, and we wish a Most Prosperous New Year to you and the family! -- ed]

===== SPECIAL NOTICE... SPECIAL NOTICE... SPECIAL NOTICE... SP

HELP A FELLOW SEBHCer AND GET A FREE JOURNAL ISSUE!

We need material to publish in this--YOUR NEWSLETTER, so we have decided to extend any subscriber's subscription by one month for every letter we receive (and publish) which answers anyone's specific technical question.

Here's a brief imaginary example of how it can work:

Julian wrote us (above) asking for schematics for his printers. Maybe Charley Bejin answers Julian's plea for help by sending him a set of documents for one printer via the SEBHC JOURNAL Readers Mailbox. We forward the documents, publish Charley's letter to Julian, then notify Charley he gets an extra JOURNAL tacked onto the end of his subscription. We also update Charley's mailing label expiration date, making it "official". See how simple it is?!

There's no reason YOU can't latch onto this opportunity to stretch your subscription bucks A Whole Lot! SEBHCers, get off your duffs and start writing NOW! The SEBHC JOURNAL is YOUR newsletter; we publish it for YOUR benefit. (We don't make a stinking penny from it--we're the original Aggressively Non-Profit venture!)

===== SOFTWARE NEWS... EX-HUG SOFTWARE NEWS... EX-HUG SOFTWARE

EX-HUG SOFTWARE DISCS are now almost completely catalogued (see list elsewhere in this edition) and we've duplicated many sets. We've sold a few, but at the prices we're asking, why are we not selling more?! Only you SEBHCers should be able to answer that urgent question.

Many of these are now software classics, unobtainable from any legitimate source other than The Staunch 8/89er and SEBHC JOURNAL. Please study the list and check any items you are interested in. If you need more information and don't have an old REMark software catalogue, contact us and we'll send--or publish--a full description of any disc in stock you wish.

BUILD THIS "SECTOR ZAPPER"

by

Wes Towsley

23816 S E 276th Street

Maple Valley, WA 98038

Some time ago I constructed something which other H-89ers might be interested in: a hard sector disc hole (or sector) zapper. With a sector zapper you can use both soft sector and hard sector discs no matter how the drive was set up. An article I found in REMark #23 described how to modify your hard sector (H17) interface card so that it would ignore the lack of hard-sector index holes on soft-sector discs, thereby increasing the flexibility of your system AND lowering disc costs (not to mention trying to find any h-s discs for sale).

Unfortunately the original article didn't say how to make the idea work with an H37 [soft-sector interface card]. A bit of "skull drudgery" later, here's how I solved the problem and built my own sector zapper for my H37 card:

First, I got out a small piece of glass-epoxy board, a scribe to mark centers, and a number 54 drill. I then drilled holes so two 555 timers (IC-1 & 2, see Figure 4) could plug into a 16-pin wire-wrap socket with its pins out the glass-epoxy card's back. Also I drilled holes for a 7400 (IC-3a-b-c), plus holes for other parts. (NOTE: Although I used the wire-wrap technique for my zapper, you can use a regular etched-foil pc card--neater, and less prone to fall apart. You might also prefer using a dual 556 timer instead of two separate 555s as I did.) [Editor's note: Wes might have saved himself lots of tedious work by using drilled card stock from Radio Shack. This item has the correct size holes on 1/10-inch centers, just right for wire-wrap sockets.]

Next, I got out my trusty wire-wrap tool, and some small-gauge Kynar wire and went to work. I kept all my leads short (about 1/2-inch long) and wrapped everything together according to the schematic of Figure 1. In some spots where I had joined two or more wires, I drilled holes to run them through and soldered the joint on the card's backside to ensure good continuity. Each timer has a 5k-ohm trimmer resistor (shown in Figure 5 as R2) and their three pins are long enough to go through the glass-epoxy material and protrude out the back. Because they can work loose, with subsequent pin breakage, I put a dab of crazy glue on the bottom of each so they'd stick to the card. [But be sure the glue is well set before trying to solder wires to the pins! -- ed]

After checking everything to make sure it worked, I mounted the zapper board at a hole drilled in the upper right-hand corner of the H37 board with a screw long enough to go through both boards and a spacer between. This prevents the two boards shorting each other together and makes a secure mechanical mounting. [Wes should have sent us a couple Polaroid views of his completed board! Also, if you are afraid of drilling holes in your H37 card, use a piece of double-faced foam tape to stick the two parts together. It's an insulator and works well, but watch that the stickum does not soften and let things come apart. -- ed]

Zapper connections for input and output are made at pin 5 of soft-sector interface board IC U13. You must very carefully de-solder the IC pin from the board then, ever-so-gently draw it from the mounting hole and bend it out from the IC body by 90 degrees. [Use "sodervik" or equal to make sure you get out all the old solder, otherwise the pin will tear out copper from inside the plated hole and there goes your continuity! -- ed]

Be very careful to NOT break off U13 pin 5! Now solder a piece of Kynar into the vacated I/O board hole from the back side long enough to go to IC3a pin 1. Solder it there; that's the index pulse train input. Now solder another lead to IC U13 pin 5 and connect it to IC3c pin 6 (zapper output). Find a convenient place on the I/O board back side to pick up plus 5 volts and ground and make the appropriate connections to your new zapper board.

With a disc mounted in the drive and spinning, I connected my oscilloscope to IC-1 pin 3 and adjusted trimmer resistor T1 until I obtained a positive-going 18 millisecond pulse at pin 3 of IC1 and then a positive-going 8 millisecond pulse at IC2 pin 3. If you have a dual-trace scope, connect one input to IC1-3, the other to IC2-3, and adjust the T2+ pulse so it brackets the T1+ pulse (see Figures 2 and 3).

To make sure the trimmers didn't later change settings, I put a little dab of nail polish between each trimmer shaft and the trimmer body. [Easy now, don't overdo the nail polish; you may want to re-adjust the zapper sometime! -- ed]

Once the zapper is working properly, any hard-sector disc will appear as if it's soft-sector. INITIALISE or FORMAT the disc according to the system you're running and away you go.

Even though hard-sector discs are hard to buy, your sector zapper will now let your system work with either hard or soft types. It will even work with 16-hard-sector discs after re-adjusting timer pulse T1+ to 11 mSec and T2+ to 6 mSec. But note that it will then not work with 10-sector discs; you must re-align the trimmers.

Note that you can NOT read 10-sector discs written in hard sector format. Ten sector discs can be used only as soft-sector once you've installed the sector zapper.

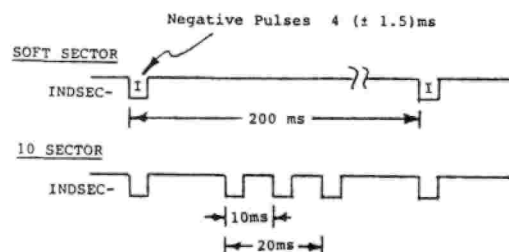


Figure 1 - Index/Sector Waveforms

"ZAPPER" conclusion

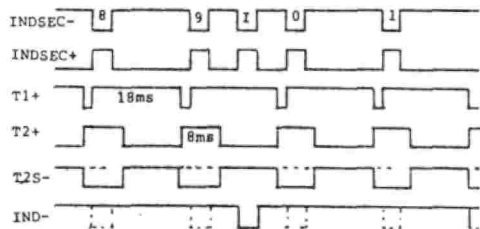


Figure 2 - Hard Sector Decoding

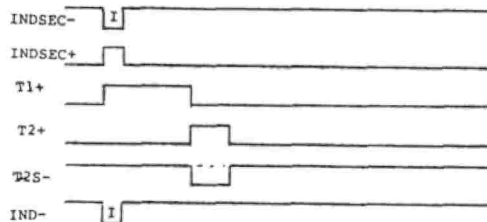


Figure 3 - Soft Sector Decoding

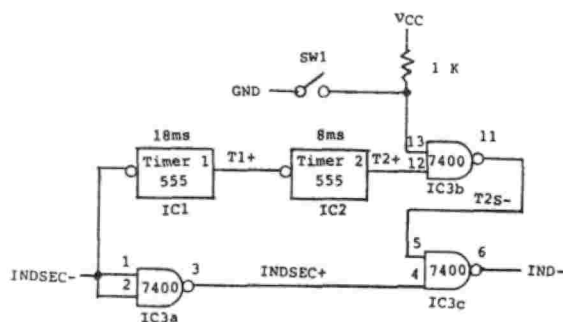


Figure 4 - Circuit Diagram of Sector Zapper

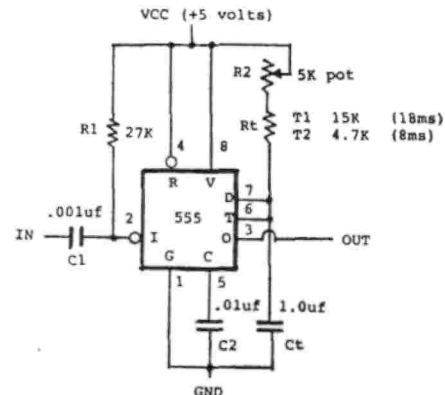


Figure 5 - Basic Diagram of Timers 1 and 2

Because hard-sector discs are getting harder to find every day, the sector zapper gives you a chance to use any you have and still use only one disc drive controller.

[eof]

[Thanks, Wes, for your neat-o construction article. Just as soon as I can, I shall build my own zapper for the extra H89 sitting idle in the basement. Since I don't have a working soft-sector controller for it, maybe I can use soft-sector discs as they are supposed to be run without problems with a sector zapper equipped hard-sector (H17) controller--I hope! Meanwhile, if any other readers have done something similar to their H89 (or H8, for that matter), please write it up and send it in, Really Soon! You'll get the same kind of pleasant surprise Wes will get when he sees the expiration date on the mailing label for this issue. -- ed]

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QUEST FOR TECHNICAL ARTICLES... REQUEST FOR TECHNICAL ARTIC

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We'd like very SEBHC JOURNAL edition to carry at least ONE "how-2" article written by one of our subscribers (see Wes Towsley's above). Otherwise, it's VERY difficult to keep this newsletter up-to-date and alive (there's a limit to how many things Your Editor can dredge up, you know). Without input from dedicated H/Z 8-bit users such as yourselves, we'll just dry up and blow away! We Need YOUR Help, Right NOW! Extend your subscription WITHOUT USING MONEY by sending us an article/humorous story about your 8-bit experience(s).

ARD-SECTOR DISC SALE... HARD-SECTOR DISC SALE... HARD-SEC

=====

Never-opened, 21 packs of Xybec hard-sector, 40-track 10-discs-in-a-pack for only SIX BUCKS/pack (or 60 cents/disc!). Contact: Gary Melander, 460 Garrison Place, Virginia Beach, VA 23452; phone: 804-498-9850, AND say that Lenny told ya!

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Our Ex-HUG Disc Catalogue

OLD HUG PART #	TITLE/DESC	Price	HUG PART #	TITLE/DESC	Price
-no p/n-	HDOS SUBMIT & ENHANCED SUBMIT Two disc set	\$15	885-1032	Disc V--Misc H8 Software, Bootable Disc	\$11
-no p/n-	EVRYWARE GAMES Vol 1	\$10	885-1038	W.I.S.E. (ASM course) H8, Bootable	\$11
-no p/n-	M6800 DEVELOPMENT SYSTEM (for HERO robot control)	\$10	885-1041A & B	HUG Small Business Package BH BASIC Version -- 2 disc set	\$35
-no p/n-	HUG FIG-FORTH (3 discs)	\$30		(See MBASIC SBP-III below)	
-no p/n-	HDOS PRINTER PROGRAMS (by /AWIZ/)	\$10	885-1044	MISC H-8 UTILITIES SOFTWARE	\$10
-no p/n-	MISC BASIC & ASM FILES	\$10	885-1050	MODEM COMMUNICATIONS SYSTEM	\$10
-no p/n-	MODEM BOOT DISC w/HTERM	\$10	885-1059	FOCAL-8 INTERPRETER Disc A	Four*
-no p/n-	MACRO Version II	\$10	885-1059	FOCAL-8 DOCUMENTATION Disc B	disc*
-no p/n-	MBASIC & BHBASIC GAMES	\$10	885-1060	"DISC VI" MISC SOFTWARE	\$10
-no p/n-	COMPLETE EDDIE-BABY	\$10	885-1063	FLOATING POINT PACKAGE	\$10
-no p/n-	H-8 COLOR GRAPHICS-ASM	\$10	885-1068	Disc XII H8w/H19 or H89 MBASIC Graphic Games	\$11
-no p/n-	HUG SYSTEM SOFTWARE & UTILITIES	\$10	885-1069	FOCAL-8 DOCUMENTS Disc C	set*
-no p/n-	AUTOSCRIBE WORKING MAS- TER Issue 150.02.XX	\$10	885-1069	FOCAL-8 SOURCE FILES Disc D	\$30*
-no p/n-	CSHDOS COMPUSERVE [MODEM] UTILITY (demo?)	\$10	885-1071A, B, C	HUG Small Business Package III MBASIC Vers, 3 disc set w/doc	\$45
-no p/n-	HUG MAILING LIST SYS- TEM (for internal use?)	\$10	885-1075	HDOS SUPPORT PACKAGE Disc A	Set:
-no p/n-	HDOS 2.0 DESPOOLING DEVICE DRIVER - Tom Jorgenson	\$10	885-1075	HDOS SUPPORT PACKAGE Disc B	\$15
-no p/n-	HUG MODEM COMMUNICATION SYSTEM	\$10	885-1077	BASCON/TXTCON cassette to disc conversion package	\$10
-no p/n-	HUG MBASIC GAMES (Bootable disc)	\$10	885-1078	Z80 ASSEMBLER (some docs)	\$10
-no p/n-	HDOS INVADERS GAME - Includes debugger by "GAC"	\$10	885-1079	PAGE EDITOR FOR H89/H8/H19	\$10
-no p/n-	MISC HDOS ABS & ASM FILES	\$10	885-1083	"DISC XVI" MISC. SOFTWARE	\$10
-no p/n-	SOURCE DEMO - online modem (an HEC promo item?)	\$10	885-1086	TINY PASCAL Version 4.1	\$10
-no p/n-	HUGMAN & MOVIE (anima- tion program for H19)	\$10	885-1089	Disc XVIII Misc H8/H89 HDOS Software (incl HTERM.ABS)	\$11
-no p/n-	FIG-FORTH OPERATING SYSTEM (JWF)	\$10	885-1090	MISC HDOS UTILITIES	\$10
-no p/n-	HA-89-3 COLOR DEMO DISC 1	The	885-1092	RDT DEBUGGING TOOL FOR HDOS & RDT DEBUGGING TOOL	Set:
-no p/n-	HA-89-3 COLOR DEMO DISC 2	set:	885-1092	/MODIFIED*/	\$15
	(probably for HEC promo use)	\$15	885-1093	MBASIC DUNGEONS & DRAGONS	\$10
			885-1094	FIG-FORTH "Disc #1"	\$10
			885-1095	SY: HARD-SECTOR DEVICE DRIVER	\$10
			885-1098	HDOS ASM/ABS H8 Color Graphics (req HA-8-3 Color Graphics board & composite video monitor)	\$11
			885-1099	HDOS Tiny PASCAL H8 Color Gra- phics Software (req HA-8-3 Color Graphics Board, composite video color monitor)	\$11
			885-1103	Sea Battle (game)	\$11
			885-1105	HDOS Device Driver Disk - H8/H89 Software	\$11
			885-1108	MBASIC Data Base Systems H8/H89 HDOS Software	\$11
885-1022	PROGRAM DEVELOPMENT EDITOR	\$10	885-1111	HDOS MBASIC Graphic Games H8-H19/H89 Software	\$11
885-1025	RUNOFF TEXT PROCESSOR	\$10	885-1112	HDOS FORTRAN Graphic Games H8-H19/H89 Software	\$11
885-1029	Disc II Games "1"	\$11	885-1113	HDOS Fast Action Games	\$11
885-1031-A & B	Disc IV--H8 Music Creating Bootable Discs	\$15			

NOTE: The above "no p/n" discs may have been Pat's working, or in-development discs. We've checked them all, and the software seems ok. * ORDER THESE DISCS BY FULL DESCRIPTION ONLY! *

More Ex-HUG Discs

OLD HUG PART #	TITLE/DESC	Price	OLD HUG PART #	TITLE/DESC	Price
885-1114	HDOS H8 Color Raiders & Goop games; HA-8-3 & Color Monitor	\$11	885-1210	HUG CP/M EDITOR (upgraded)	\$11
885-1116A	HDOS ALDT Z80 Debugging Tool	\$11	885-1211	CP/M SEA BATTLE Game	\$11
885-1119	BH BASIC Support	\$11	885-1212	CP/M Utilities Software Disc	\$11
885-1120	HDOS "WHEW" UTILITIES	\$11	885-1215	CP/M BASIC-E	
885-1121-A	HUG HARD-SECTOR PACKAGE		885-1215[37]	(Two-disc set, -[37] is 80trk	\$15
885-1121-B	(Two disc set)	\$15	885-1216	NEW HUG BIOS, incl DDD Hex file	
885-1123	HDOS XMET Cross-Assembler for ET18 (HERO) & ET3400 TRAINER	\$11		(Three-disc set)	\$18
885-1126	HDOS UTILITIES by PS:	\$11	885-1217	CP/M Disc Dupe Utilities	\$11
885-1127-A	HUG SOFT-SECTOR SUPPORT PKG		885-1219	Navprog 7 (Educational Game)	\$11
885-1127-B	(Two hard-sector discs)	\$15	885-1220	CP/M ACTION GAMES	\$11
885-1127[37]-A	HUG SOFT-SECTOR SUPPORT PKG		885-1221A, B	WATZMAN/HUG H19 (Keyboard ROM code upgrade) (Two-disc set)	\$15
885-1127[37]-B	(Two soft-sector discs)	\$15	885-1223A,B,C	HRUN CP/M HDOS EMULATOR	
885-1128	HDOS DISKVIEW	\$11		(Three disc set)	\$18
885-1129	HDOS Color Video Terminal CVT H8/H19/HA-8-3 or H/Z89/HA-89-3 & Composite video color display	\$11	885-1226	CP/M UTILITIES by PS:	\$11
885-1131	HDOS CHEAPCALC (spreadsheet)	\$11	885-1228	CP/M FAST-ACTION GAMES	\$11
885-8001	HDOS SE (Screen Editor) "va"	\$11	885-1227[37]	CARD GAMES	\$11
885-8007	EZITRANS	\$11	885-1229	XMET for CP/M	\$11
885-8009	EVRYWARE GAMES DISC (boots!)	\$11	885-1230	KEYMAP utility	\$11
885-8017	HDOS Programmer's Helper rl	\$11	885-1231	MBASIC XREF utility	\$11
			885-1232	CP/M Color Video Terminal (CVT)	\$11
			885-1233[37]	CP/M CHEAP CALC	\$11
			885-1235[37]	COPYDOS Utility (Z100)	\$11
			885-1245[37]	CP/M-85 KEYMAP utility (Z100)	\$11

RARE, USEFUL & UNUSUAL NON-HEATH HDOS SOFTWARE
Working Copies From Various Non-Supporting Sources

no p/n	SIX DRIVES FOR HEATH -- How2 expand H17 interface to run six floppy drives, w/on-disc instructions (Dual HDOS & CP/M format!)	\$15
no p/n	MXGRAPH an HDOS MX-80 Graphics editor & driver w/sample pix, no manual--company long defunct	\$15
#211-H5	HDOS ED-A-SKETCH Graphics Editor w/manual, sample pix	\$15
#215-H5	HDOS SPOOL-N-60 Printer Spooler w/manual	\$15
#223-H5	HDOS ZENCALC Electronic Spreadsheet w/manual	\$15

CP/M SOFTWARE (from the PS: donation)

OLD HUG PART #	TITLE/DESC	Price
885-1116B	CP/M Z80 ALDT version	\$11
885-1207	TERM (Modem) and HTOC Utility	\$11
885-1208	CP/M FIG-FORTH	
	(Three-disc set)	\$18
885-1209A & B	Dungeons & Dragons (DND) Game MBASIC version (2 discs)	\$15

NOTE: Parts with numbers ended by "[37]" indicates original discs came in soft-sector format only. Because of hard-sector disc scarcity, all software will be shipped on soft-sector discs unless specifically requested the other way. We do hope you understand our limitations....

WHEN ORDERING SOFTWARE FROM THESE LISTS: Please DO NOT use disc titles, just the part number(s). That way you will make more efficient use of our back-page order blank (and not have to write so much).

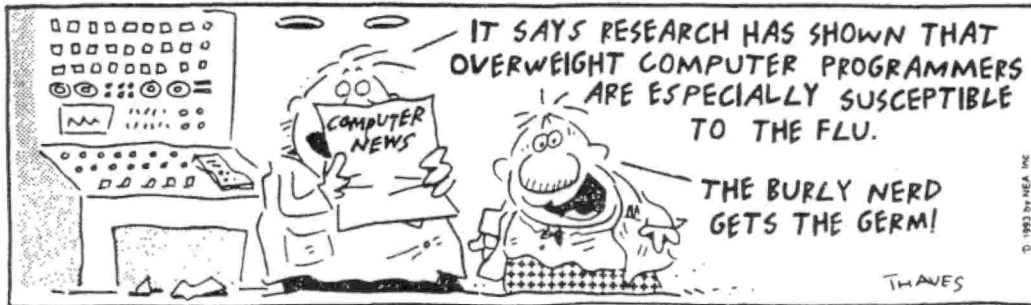
We shall do our best to ship your disc(s) within five real days of our receiving your order.

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Due to unexpected illness, plus great confusion and dis-
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we didn't deliberately try to short-change any of our
subscribers, and will endeavour to make up the shrinkage to
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Meanwhile, we wish everyone a Merry Christmas, Happy Rosh-
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