

**Cleveland Codonics, Inc.**  
**P.O. Box 45259**  
**Cleveland, Ohio 44145**

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Cleveland Codonics, Inc.

Addendum to: User's Guide Manual for the Imaginator Model I-100

January, 1983

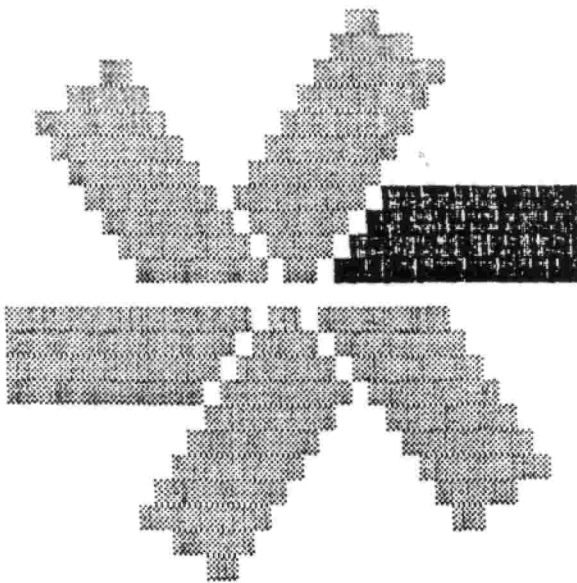
A previously undocumented feature of Version 1.2 of the Graphics Command Processor and -T GCPs.

The User's Guide Manual recommends a hardware reset of the terminal to abort from a midstream or incorrect graphics command. While this is fine for H/Z-19s it is unsatisfactory for H/Z-89s since this also causes an operating system reboot. To remedy this it is possible to reset the terminal without causing a reboot when in graphics mode by turning the terminal off-line and entering a ctrl-@ (NUL). When the terminal is not in graphics mode the standard ESC z will perform the identical function.

HEATH USERS' GROUP

Hilltop Road (616) 982-3463

St. Joseph, MI 49085



*Done on 1 disk  
4/14/84  
was needed  
to fix  
Basic intrusion  
with it  
Example #2*

Mar. 30, 1983

Cleveland Codonics, Inc.  
Attn. Peter Botten  
P. O. Box 45259  
Cleveland, OH 44145

Dear Peter,

Below is a patch for the BIOS for Heath/Zenith CP/M 2.2.03 that converts it to use hardware handshaking with the terminal. Since the CRT routines are not at the same address in different configurations of the BIOS (for different disk controllers), I had to add a procedure for locating the area to patch, which makes the process a bit more complicated than with HDOS. In this example, what you type is in bold print. When you see "xxxx", it refers to a 4 digit hex number whose value is unimportant to this procedure. Any other combination of lower case letters, such as "aaaa" or "bbbb" refers to a 4 digit hex number that will be used in a later step. This patch is only valid if the CRT routines in the BIOS have not been modified.

A>DDT

DDT VERS 2.2

-L0,2

0000 JMP aaa3

0003 **E803**

Locate the address of the BIOS warm boot entry point in your system. It will always end with the number 3, and so we have shown it here as "aaa3".

-L18,1A

0018 JMP bbbb

001B **F5B6**

Locate the address of the CRT interrupt service routine in your system, indicated here as "bbbb".

-Hbbbb,aaa0

xxxx cccc **0DB6**

Find the offset from the start of the BIOS to the CRT interrupt service routine by subtracting the above two addresses. Replace the 3 in the warm boot address with a zero before subtracting.

-Hcccc,10A

dddd xxxx

**0EC0**

Find the offset from the start of the BIOS to the CRT output status routine, which is 10A (hex) bytes above the CRT interrupt service routine.

hddd,200  
eeee xxxx

10c0

Find the actual address of where the CRT status routine will be when you load the BIOS into memory. Jot down the result (eeee) for later use.

-IBIOS.SYS  
-R

Load your BIOS into memory. Jot down the number "yyzz" for later use.

NEXT PC  
yyzz 0100 1780

Disassemble the BIOS at the calculated CRT output status routine address (eeee) to make sure we are at the right point. Note the addresses marked with characters other than "xxxx". Do not make the patch if this disassembly does not show what we have shown here.

10c0  
10c6  
-Leeee  
eeee LXI H,0037  
xxxx LXI D,xxxx 1020  
-ffff LDA 0036  
xxxx RAR  
xxxx JC gggg 0EE5  
xxxx CALL xxxx 0F78  
xxxx JZ xxxx 0EE3  
xxxx LDAX D  
xxxx ORA A  
xxxx JNZ xxxx 0EDA  
xxxx DCR A

-Hffff,200  
xxxx hhhh -0EC6

Subtract 200 (hex) from address ffff, and add 200 to address gggg. Save the results for later.

-Hgggg,200 10E5  
iiii xxxx

Insert the first patch at address ffff.

-Affff 10C6  
ffff CALL gggg 0EE5  
xxxx NOP  
xxxx JZ hhhh 0EC6  
xxxx .

(Type a period.)  
Insert the second patch at iiii.

-Aiiii 10F5  
iiii IN EE  
xxxx NOP  
xxxx LXI H,37  
xxxx ANI 10  
xxxx RET  
xxxx .

yyzz = 1780

16  
-12

-^C 23  
A>SAVE nn BIOS.NEW

(Type a period.)  
(Type Control-C.)  
Save the patched BIOS on your disk. Use the number "yyzz" you jotted down earlier to calculate "nn" as follows: If "zz" is 00, convert "yy" to decimal and subtract one to get "nn". If "zz" is not zero, convert "yy" to decimal but do not subtract one.

17<sub>H</sub> = 23<sub>10</sub>

A>STAT BIOS.SYS \$R/W

Remove the R/O attribute from the old BIOS.

A>ERA BIOS.SYS

Erase the old BIOS.

A>PIP BIOS.SYS=BIOS.NEW

Replace it with the new one.

A>STAT BIOS.SYS \$R/O

Set the R/O attribute.

A>STAT BIOS.SYS \$SYS

Set the SYS attribute.

After the patch is made, reboot the system to put the new BIOS into memory.

Sincerely,

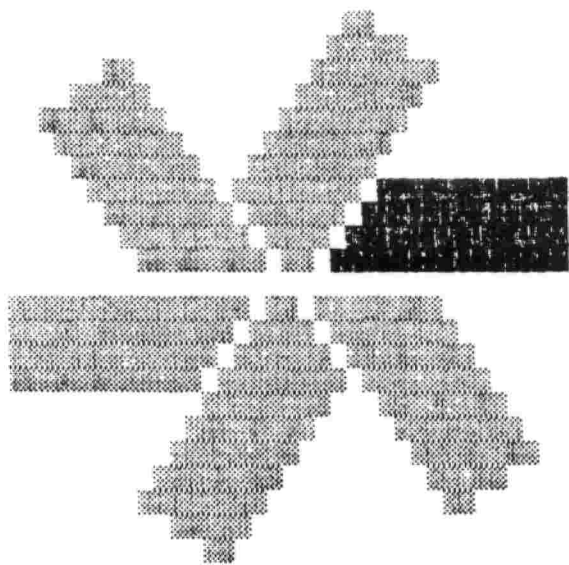
**REMEMBER TO REBOOT AFTER CHANGING DISKS BEFORE GRAPHICS**

Patrick Swayne. HUG Software Engineer

HEATH USERS' GROUP

Hilltop Road (616) 982-3463

St. Joseph, MI 49085



Nov. 10, 1982

Cleveland Codonics, Inc.  
Attn. Peter Botten  
P. O. Box 45259  
Cleveland, OH 44145

Dear Peter,

The following patch will convert HDOS 2.0 to hardware handshaking with the terminal. The patch should be made using the program PATCH.ABS that is supplied with HDOS. In this example, what you type is shown in **bold print**.

>PATCH

PATCH Issue #50.06.00

File Name? **HDOS.SYS**  
Patch ID? **IFOJIC**  
Prerequisite Code? **IFBEIADPGEFFCF**

Address? **20127**

020127 = 146/**131**

020130 = 071/

(just hit RETURN where no entry is shown)

020131 = 333/

020132 = 373/**356**

020133 = 346/

020134 = 001/**020**

020135 = 312/

020136 = 131/

020137 = 071/

020140 = 361/**000**

020141 = 323/**000**

020142 = 372/**000**

020143 = 303/

020144 = 160/**146**

020145 = 071/**^D**

(Control-D typed)

Address? **^D**

Patch Check Code? GPEGPNNB

PATCH Issue #50.06.00

File Name? ^D

After this patch is made, HDOS will handshake properly with an H19. This patch overwrites the part that allows HDOS to work with the old H8-5 interface card. It does not disable software handshaking, so that will still work.

Here is the code that is patched (part of the routine SCOUT in HDOS.SYS).

OLD			NEW		
SCOUT9	LDA	S.CDB	SCOUT9	LDA	S.CDB
	CPI	1 ;H8-4?		CPI	1
	JZ	SCOUT92		JZ	SCOUT91
SCOUT91	IN	3730 ;H8-5 PORT	SCOUT91	IN	3560 ;HS PORT
	ANI	1		ANI	200
	JZ	SCOUT91		JZ	SCOUT91
	POP	PSW		NOP	
	OUT	3720		NOP	
				NOP	
	JMP	SCOUT95		JMP	SCOUT92
SCOUT92	IN	3550	SCOUT92	IN	3550

Hope this has been of some help.

Sincerely,



Patrick Swayne, HUG Software Engineer