

# HOCUS

## Home Computer Users Spotlight

A monthly publication of the Milwaukee Area 99/4 Users Group

SEPTEMBER, 1984

### Updated List of Call Loads and Call Peeks

For those of us that enjoy "poking" around inside our 4A's, here is a fairly complete list of addresses and variables. This comes to us from the Central Iowa Users Group.

Minimum requirements are Extended BASIC and Expansion memory. The format to be used looks something like this:

```
CALL INIT
CALL LOAD(ADDRESS,VALUE)
```

for example: CALL INIT :: CALL LOAD(-26620,88)

To peek into an address the format is:

```
CALL PEEK(ADDRESS,P) :: PRINT P
```

ADDRESS	VALUE	FUNCTION IN EXTENDED BASIC
-28672	P	P=0 SPEECH NOT ATTACHED P=96 SPEECH ATTACHED
-31744	0 TO 15	CONTINUATION OF LAST SOUND (0=1500 AND 15=1000)
-31748	0 TO 255	CHANGE THE CURSOR FLASHING AND REPEATED TONE RATES
-31788	160	BLANK OUT SCREEN (MUST PRESS A KEY TO ACTIVATE)
	192	NO AUTO SPRITE MOTION OR SOUND
	224	NORMAL OPERATION
	225	MAGNIFIED SPRITES
	226	DOUBLE SIZED SPRITES
	227	MAGNIFIED AND DOUBLE SIZED SPRITES
	232	MULTI-COLOR MODE
-31794	P	TIMER FOR CALL SOUND (COUNTS FROM 255 TO 0)
-31804	X, Y	RETURN TO TITLE SCREEN (USE "CALL PEEK(2,X,Y)")
-31806	0	NORMAL OPERATION
	16	DISABLE CURSOR (FCTN =)
	32	DISABLE CURSOR USE REPEAT FOR CONTINUOUS SOUND
	64	DISABLE AUTO SPRITE MOTION
	128	DISABLE ALL THREE
-31808	P, Q	DOUBLE RANDOM NUMBER GENERATOR (0 TO 255) NEED "RANDOMIZE"
-31860	4	SOFTEN BASIC TO CONSOLE BASIC (NEED "NEW")
	8	AUTO RUN OF DSK1.LOAD
-31866	P, Q	END OF CPU PROGRAM ADDRESS (P6+Q)
-31868	0	NO "RUN" OR "LIST" AFTER A "FCTN 4" IS USED
-31873	3 TO 30	SCREEN COLUMN TO STAY WITH A "PRINT"
-31877	P	P32=REPEAT COINCIDENCE P64=FIVE SPRITES ON LINE
-31878	P	RESPECT REPEATED SPRITE IN MOTION (0 STOPS ALL)
-31879	P	TIME FOR THE INTERFLOPS EVERY 1/60 SEC (0 TO 255)
-31880	P	RANDOM NUMBER (0 TO 99) NEED "RANDOMIZE"
-31924	0 TO 5	CHANGE KEYBOARD MODE (LIKE "CALL PEEK(N,...)")
-31934	63, 255	DISABLE DISK DRIVE (USE "NEW" TO FREE MEMORY)
	55, 215	ENABLE DISK DRIVE (USE "NEW" TO FREE DRIVE)
-31931	0	UNEXPECTED BASIC PROGRAM
	2	SET "ON WARNING NEXT" COMMAND
	4	SET "ON WARNING STOP" COMMAND
	16	SET "TRACE" COMMAND
	64	SET "ON BREAK NEXT" COMMAND
	128	RESET EXPANSION PROGRAM
-31962	32	RETURN TO TITLE SCREEN
	255	RESET EXPANSION WITH DSK1.LOAD
-31974	P, Q	END OF VDP STACK ADDRESS (P6+Q)

Well that ought to give you a few to try out. If you haven't tried out the initial CALL LOAD example, now would be a good time. Turn out the lights... the party's over...

### Have a Gemini 10X Printer?

Here is a short routine from Tigercub that will provide you with slashed zeros. If you have a Gemini 10 you don't have to worry about this, it's built into your printer.

```
100 OPEN #1:"PI0"
110 PRINT #1:CHR$(27);CHR$(42);CHR$(0);
120 PRINT
#1:CHR$(27);CHR$(42);CHR$(1);CHR$(48);CHR$(0);CHR$(92);CHR$(34);CHR$(8);CHR$(8);CHR$(69);CHR$(2);CHR$(85);CHR$(34);CHR$(8);
130 PRINT #1:CHR$(27);CHR$(36);CHR$(1)
140 END
```

### Tired of that same old cursor?

Tony Johnson of the Houston Users Group has a fix. The following equipment is required: Disk drive, Extended BASIC, Expansion memory, Editor/Assembler.

Bring up E/A and enter the following:

```
DEF CURSOR,VMBW
VMBW EQU >2024
NEWDEF DATA >0000,>0000,>0000,>7E00
CURSOR LI R0,100B
LI R1,NEWDEF
LI P2,P
BLWP @VMBW
RT
END
```

The data statement holds the Hex code for the cursor. After entering it into the E/A, save the file in "DSK1,CURSOR1". Next assemble it using the "R" option storing the object file in "DSK1,CURSOR".

Leave E/A and enter Extended BASIC and enter this program.

```
100 CALL CLEAR
110 CALL INIT
120 CALL LOAD("DSK1,CURSOR")
130 CALL LINK("CURSOR")
140 END
```

The "CALL INIT" command prepares the memory expansion to load and run an assembly program. The "CALL LOAD" will load the file into expansion ram and "CALL LINK" will transfer control to the assembly program. After running this program, control will be returned to you and a blinking "\_" will be the new cursor. Save the x-basic program under "DSK1.LOAD" and whenever you enter x-basic the cursor will be a "\_". The assembly program will stay in expansion ram until you turn the power off or use a program like TI-WRITER that will write over that memory location. When you return to x-basic just type in "CALL LINK,"CURSOR")" and the cursor will come back up.

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MEMBERSHIP INFORMATION

MEMBERSHIP IS OPEN TO INDIVIDUALS AND FAMILIES WHO ARE INTERESTED IN USING AND PROGRAMMING THE TEXAS INSTRUMENTS 99/4A HOME COMPUTER. THE MEMBERSHIP INCLUDES ACCESS TO BOTH THIS NEWSLETTER AND TO THE USER GROUP LIBRARY. ANNUAL DUES ARE: INDIVIDUAL, \$8.00; FAMILIES, \$12.00. TO JOIN, SEE THE TREASURER AT ANY OF OUR MONTHLY MEETINGS.

MEETING INFORMATION

THE MILWAUKEE AREA 99/4A USERS GROUP MEETS ON THE LAST SATURDAY OF EACH MONTH IN THE LOWER LEVEL OF WAUMATOSA SAVINGS & LOAN AT 7500 N. STALE STREET IN WAUMATOSA. MEETING TIME IS 1:00 TO 4:00 P.M..

SPECIAL NOTE: DUE TO A SCHEDULING CONFLICT DURING 1984, THE DECEMBER MEETING WILL BE HELD ON THE THIRD SATURDAY OF THE MONTH (DEC 15TH) AT OUR NORMAL TIME AND PLACE.

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1985 USERS GROUP MEETING SCHEDULE

The meeting schedule for 1985 has been set. A vote taken at the July meeting supported the continuance of our Saturday meeting policy. The users group has reserved the second Saturday of each month during 1985 for our meetings. Mark your calendars.

NEWS LETTER EDITORS SUBMIT RESIGNATIONS

Effective after the October newsletter, Tom Kruse and Mike Milde will no longer manage the editing of our newsletter. Tom and Mike have been Managing Editors since the December 1983 edition of HOCUS. With the exception of the May, 1984 newsletter, both have provided the group with an uninterrupted stream of news, reviews, program listings and other feature articles.

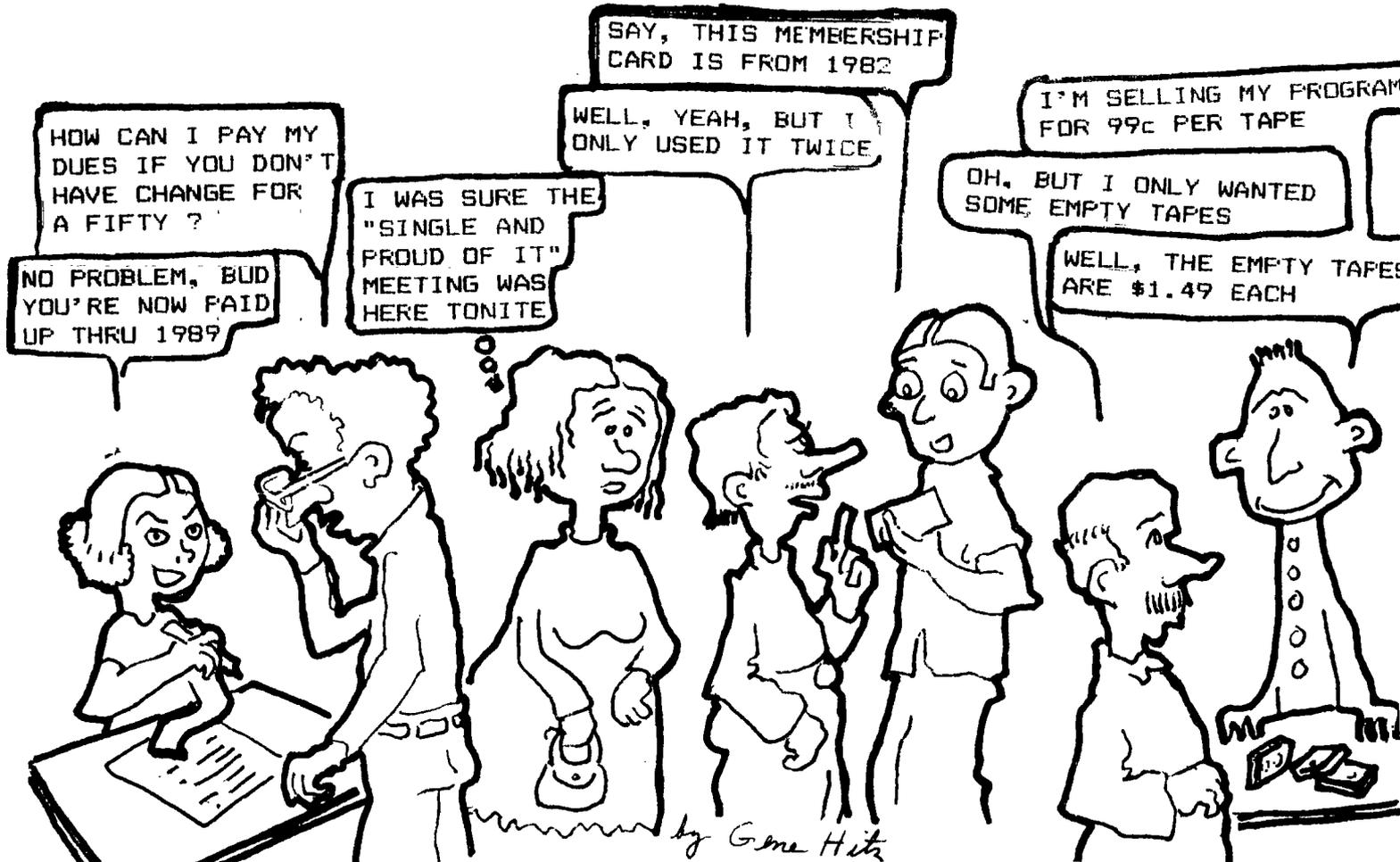
Replacements are desperately needed to continue their work. Our newsletter is one of the major benefits offered to our members. It is vital to the survival of our users group. Please take a moment to consider whether you would like to contribute some of your time to such an important cause. In return for your efforts, the users group provides the Senior Editor with TI-WRITER. All you must have is a printer and the enthusiasm to carry the newsletter on for another term. Don't pass up this opportunity to be at the center of all information that flows into our group and out to our members. Contact Jim Vincent, Gene Hitz, Tom Kruse or Mike Milde for more information.

GEMINI-10 USERS TAKE NOTE

The Brevard Florida Users Group Newsletter reports the following: If you own a Star Micronics Gemini-10 dot matrix printer, and you have had problems with the printer not completely printing the first character or two after start-up, read on. This problem seems to only occur after the printer has been off for a while. The problem is in the print head and can be corrected by replacing it. Call Star Micronics California Support Group at (714)708-4340 and they will send you a new print head. Installation instructions are in the owners manual. You only have to pay return postage for the old one.

MILWAUKEE AREA USER GROUP

AT THE ENTRANCE



## Double-Density FORTH by JMWincnt

This article is intended for all TI FORTH users who have (or plan on having) double density and/or double sided disk capabilities. While the techniques described should work with any disk controller capable of double density, the author's CorCom 9900 Disk Controller card is the only one that has been tested. The purpose of this article is to illustrate both how to access the additional screen capacity and how to modify the FORTH words and disc to be compatible with the new format and Disk Manager.

Throughout this article lowercase letters used in a FORTH definition will indicate a variable value to be entered. The following terms will be used to refer to the various formats a FORTH disc may have.

90 SCRIN or SSSD - the original 90 screen single sided single density format  
 180 SCRIN - either a SSSD or DSSD disc when comment applies to both  
 360 SCRIN or DSDD - a double sided double density disc  
     SSDD - a single sided double density disc  
     DSSD - a double sided single density disc

The first step is to use Disk Manager to format (initialize) a 180 or 360 SCRIN disc. Next, you must copy FORTH from the 90 SCRIN disc to the new 180 or 360 SCRIN disc. The disc copy feature of CorCom's Disk Manager will do this properly for you. If you have two drives, the FORTH-COPY word in the -COPY screens will also do it properly (do 0 DISK LO ! first). However, if you are using TI's Disk Manager II, after copying the three files you must use FORTH to copy screens 1 to 9 because Disk Manager II puts them in the wrong place! To do this, enter the following for each of the nine screens.

```
n BLOCK UPDATE ( where n is the screen number to be read from old disc)
FLUSH          ( after inserting the new disk - note: up to five screens
                may be entered at a time)
```

Now edit screen 3 of your new disc and add the following commands:

```
x DISK SIZE ! ( where x = 180 or 360 as appropriate)
y DISK HI !   ( where y = x times 1, 2, 3, or 4 depending on the number
                of drives you have)
```

Unfortunately, TI FORTH does not provide a method for configuring each drive individually. Therefore, the user must be cognizant of which screens are available on each drive when there are differences between them.

At this point, FORTH can be booted and it will recognize the full capacity of your 180 or 360 SCRIN disc. You can create, edit, list, and load from screens greater than 89. However, neither Disk Manager nor FORTH-COPY will recognize this disk as having more than 90 screens. To fix this problem you must modify the -COPY screens (39 and 40), the disc header (sector 0) and, the FORTH SCRN file header (sector 4).

First edit screen 39. Change the value 90, which appears once in DTEST and twice in FORTH-COPY to 180 or 360 as appropriate. Next, edit screen 40 as follows:

```
Line 3 - change 168 to 200 for 180 SCRIN or 5A0 for 360 SCRIN
Line 4 - change 944 to 1244 for SSDD or DSDD (no change for DSSD)
Line 5 - replace entire line with:
    DUP 10 + 2028 SWAP ! 2028 12 + a SWAP ! DUP 14 + 24 0 FILL
    where a = 0201 for SSSD, 0102 for DSDD, or 0202 for DSSD
Line 10 - change 165 to 2CD for 180 SCRIN, or 570 for 360 SCRIN
Line 13 - change 4016 to C02C for 180 SCRIN, or C059 for 360 SCRIN
```

Next edit screen 33 to modify the FORMAT-DISK word to:

```
: FORMAT-DISK 1+ a 37111 ! 18 SYSTEM ;
( where a = 258 for SSSD, 513 for SSDD, 514 for DSDD)
```

Finally, you need to create a word that will modify the header sectors on your new disc. This word only needs to be executed once since copies of this disk, once it's modified, will not require modification. Here is the way to do it:

```
HEX 0 DISK LO ! ( removes disc fence)
: DD-FORTH 0 BLOCK UPDATE ( read screen 0 and mark as updated)
  DUP A + a SWAP ! ( a = 200 for 180 SCRIN, 5A0 for 360 SCRIN)
  DUP C + b SWAP ! ( b = 944 for DSSD, 1244 for SSDD or DSDD)
  DUP 10 + c SWAP ! ( c = 2028 for all versions)
  DUP 12 + d SWAP ! ( d = 201 on DSSD, 102 on SSDD, 202 on DSDD)
  38 + CB FF FILL ( flag all sectors as in use)
  1 BLOCK UPDATE ( read screen 1 and mark as updated)
  DUP E + f SWAP ! ( f = 2A0 for 180 SCRIN, 570 for 360 SCRIN)
  DUP 1C + g SWAP ! ( g = 4D20 for 180 or 360 SCRIN versions)
  DUP 1E + h SWAP ! ( h = 2805 for 180 SCRIN, 5205 for 360 SCRIN)
  20 + i SWAP ! ( i = F029 for 180 SCRIN, F059 for 360 SCRIN)
  FLUSH ; ( write modified screens to disc)
DECIMAL DD-FORTH ( execute it)
```

Now your new high capacity copy of FORTH is fully compatible with Disk Manager, the FORTH format, copy, test, and header words and your double density and/or double sided disk drives and controller. Enjoy!

## CONVERT AN ATARI/COMMODORE JOYSTICK TO BE COMPATIBLE WITH YOUR TI

Many of the good joysticks on the market today are made for ATARI or Commodore home computers. With minimal effort you can build an adapter that will allow you to use one of these joysticks for your TI Home Computer.

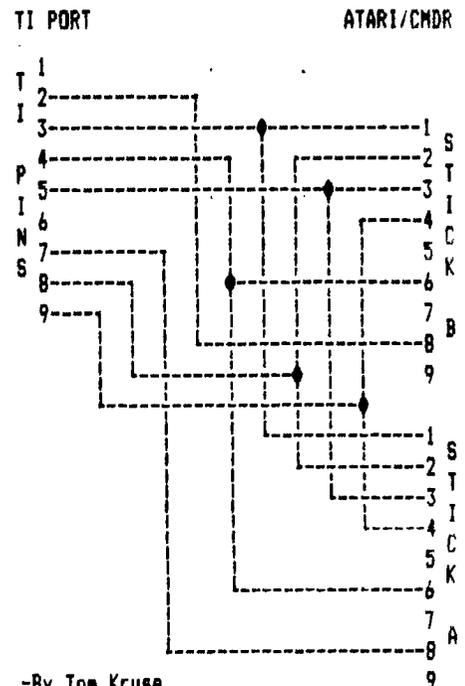
The pinouts from the Home Computer are as follows:

PIN	DESCRIPTION	FRONT VIEW OF MALE 9-PIN "D" OUTLET ON TI CONSOLE
1	Not connected	1
2	Stick B GROUND	2
3	UP (key 0)	3
4	FIRE (key 4)	4
5	LEFT (key 3)	5
6	Not connected	6
7	Stick A GROUND	7
8	DOWN (key 1)	8
9	RIGHT (key 2)	9

The pin layout for an ATARI/Commodore joystick is as follows:

PIN	DESCRIPTION
1	UP
2	DOWN
3	LEFT
4	RIGHT
5	Not Connected
6	FIRE
7	Not Connected
8	GROUND
9	Not Connected

The following diagram shows the connections necessary to build a converter. It is up to your know-how for the actual construction, however, you will probably need to purchase three nine-pin "D" connectors -- two male and one female, a small box and some wire. The female connector will plug into the TI joystick port and the two male connectors will provide the connections for your ATARI or Commodore joysticks.



-By Tom Kruse

