



This is my last input to the newsletter as your club secretary. It has been a very educational experience and the new friends that I have made this past year have made it very worthwhile.

\*\*\*\*\*

## ELECTIONS

### Final Note -- Ralph Devin, Past President

The new officers will be introduced at the January meeting. Because of the low turnout at the December meeting there were very few votes. In fact, only about 10% of the membership voted, the majority of those votes being cast by the current officers.

It has been very fun being president for the past year and I am looking forward to being the newsletter editor this year. This coming year will see the club developing some new ideas for serving the members better.

\*\*\*\*\*

## HARDWARE TIPS

### Disk Formats -- John Ueland

Don't buy the NAVARONE DISK FIXER module for the DDCUMENTATION. There is less documentation than they supplied with the original disk version. They do not describe the disk format in any detail. Otherwise the MODULE works just as well as the original DISK version. You will have to use HEXADECIMAL numbers to make much use of it. If you have a printer you can get some ASCII code conversion but only on the printer (no screen display of ASCII code)

The following information could have supplied but was not. Some of this information I understand came from the original disk-based version which is more complete than what was supplied with the module. In addition, I have added more detailed information from other sources such as newsletters. Their documentation included the following note:

NOTE: This information may not be accurate. Texas Instruments does not publish the actual format of their disk system, and consequently, this section is only an interpretation of the format used. You should find it adequate for most purposes.

### SECTOR\_0 - Disk Information

HEX ADDRESS	CONTENTS
0000-0009	Disk name - up to 10 character
000A-000B	Total number sectors on disk (>0168=360, >02D0=720, >05A0=1440)
000C	>09 Number of sectors per track
000D-000F	'DSK' (>44534B)
0010-0011	>50=P=Disk backup protected, >20=BLANK= not protected
0012-0013	>0201=DS/SD >0101=SS/SD
0038-0064	Disk bit map side 1. See note below
0066-0092	Disk bit map side 2. See note below

NOTE on >0038 to >0092: This is a sector allocation bit map of sectors used. Where 0=sector not used, 1=sector used. The first byte is mapped for sectors 0-7 and the next byte is 8-15 and on sequentially. For example starting at sector >38 (bytes) in words displayed as >0300 would indicate a formatted disk using sectors 0 and 2 only. Notice each byte starts on the right side. The 00 indicates sectors 8-15 as unused. Or you can take word at a time, and split into bytes. Take byte at a time and split into bits. Reverse the order of this byte. 1=sector used, 0=not used. (eg.- >0038=>FC00. This equals 1111 1100 0000 0000. Take first byte (1111 1100), reverse the order (0011 1111). This means sector 0 and 1 are unused, sector 2 to 7 are used. This is impossible, sector 0 and 1 are always used, but you get the idea.)

SECTOR 1 - Directory Link map

Each 16 BIT word lists the sector number of the file directory (in hex) record of an allocated file in ALPHABETICAL order of file names. Not the order entered. The list is terminated by >0000. The maximum number of files for single sided single density is  $127 = (256/2) - 1$ . There is one place that problems can occur. FILES CAN BE LOST because of a bad number destroying the correct search order making the file not available.

SECTOR 2 [HRU 2] - Contains file DIRECTORY description records

HEX ADDRESS	CONTENTS
0000-0009	File name - up to 10 characters
000C	FILETYPE - >00=dis/fix >01=program >02=int/fix >80=dis/var >82=int/var FILE PROTECTION add >0B to these numbers.
000D	NUMBER of RECORDS/SECTOR (MAXSIZE)
000E-000F	Number of sectors allocated to the file. (Disk manager will list more than this number due to counting the directory. Don't forget this sector counts)
0010	Contains the number of bytes used in the last record for PROGRAM (memory image) and DATA (variable length) files
0011	MAXIMUM Record size of data file.
0012-0013	Record count for file. Second byte the high order digit.
001C	First sector of file.
001D	Block Link map.

Files are placed on disk in the order they are created. This is a first-come first-served sequential order. The first file written will start at sector >0022, and each subsequent file will be placed after it. If a file is deleted, the next file written will start in this hole. If the hole is not large enough for the file, the file will be fractured, and the remainder will be placed in the next available block of sectors. The block link map keeps track of this fracturing. Each block link is 3 bytes long. Byte 1 is the first sector of this block, and byte 2 and 3, when reversed, (eg.- B002 becomes 2B) is the number of FOLLOWING sectors making up the block. (eg.- not counting the first one) With the second byte the High-order byte value.

0002-0021 Reserved for DIRECTORY file description records. These records can be used for file data if no other sectors are available. If more than 32 files are stored on the disk additional directory records will be allocated as needed, a sector at a time from the available sectors left on the disk.

FIRST SECTOR OF FILE

The first byte of the first sector of each file is where the proprietary protection invoked by Extended Basic is flagged. To unprotect this file, change >0000 using the Alter command to it's 2's complement, leaving the LSB=1.

0000000000000001

DIS/VAR 80 TO MERGE TRANSLATOR

by Ed Neu -- Reprinted from MSP Newsletter Dec 1984

EUREKA!!  
I've found it!

At last . . . full screen editing of Extended BASIC programs! Through the efforts of other TI users around the country, I have found a way to use the versatility of the full-screen editors of either Editor/Assembler or TI-WRITER to create, edit, and change XBASIC programs - and get them to run!

Shortly after I acquired TI-WRITER, I discovered that I could "LIST" any program to disk and then edit it using TI-WRITER. That's because the 99/4A lists in a Display-Variable 80 format. However, there was no way to get it back into a form that XBASIC could run.

Thanks to John Hamilton of the Central Iowa 99'er Users Group and the coverage given by Fred Hawkins of the Lehigh 99'er Computer Group, I can now go from DIS/VAR 80 files to something that will run.

The program below reads a DIS/VAR 80 format file, ignores lines that don't have line numbers, and converts it into a VAR 163 format. That's the format in which MERGED files in XBASIC exist. In other words, it converts from a TI-WRITER type file into a MERGE file which can be loaded and run in XBASIC.

The key is that it converts all program lines into trailing comments by inserting an "!" as the first character in every line. After the program is MERGED into memory every leading "!" must be removed. While this is a real pain, especially for a long program, it is necessary. This editing step is the only way to get the XBASIC editor/translator to re-tokenize the line in memory into runnable code.

This inconvenience is tolerable for most jobs because of the tremendous power of TI-WRITER or Editor/Assembler in working with programs. The search and replace capabilities of these editors makes large-scale program modifications a snap.

It's also really simple to insert or delete large blocks of code. It may even be easier using this translator than using the "UNMERGE" utility program in our library. Just "LIST" (LIST "DSK1:program name") pieces of programs to disk files, translate them to MERGE format, merge them together, remove the leading "!'s, and you have a new program!

The next item is to find someone who is really clever and has discovered how to get into the XBASIC translator and get it to re-tokenize the lines of code without having to go in and manually remove those "!'s. Any ideas out there? If so, let me know. In the meantime, I hope some of our members find this as handy as I have.

```

100 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
110 !# TRANSLATES FROM      #
120 !# DIS/VAR 80 TO MERGE #
130 !# FORMAT              #
140 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
150 !MSP 99 NEWSLETTER DEC84
160 !BY ED NEU
170 !USE A FULL SCREEN EDITOR TO CREATE EXTENDED BASIC PROGRAMS
180 !CREATE A FILE USING TI-WRITER; MAKE SURE YOU DISABLE WORD
190 !WRAP MODE AND LIMIT LINE LENGTH TO 80 CHARACTERS
200 CALL CLEAR
210 DISPLAY AT(3,7)BEEP ERASE ALL:"###TRANSLATE###"
220 DISPLAY AT(7,5):"DIS/VAR 80 FILENAME:"
230 ACCEPT AT(9,5)SIZE(15):IN$
240 DISPLAY AT(12,5)BEEP:"MERGED OUTPUT FILENAME:"
250 ACCEPT AT(14,5)SIZE(15):OUT$
260 OPEN #1:IN$
270 OPEN #2:OUT$,VARIABLE 163
280 LINPUT #1:L$
290 S=POS(L$," ",1)
300 ON ERROR 490
310 N=VAL(SEG$(L$,1,S))
320 ON ERROR 440
330 A=INT(N/256)
340 A$=CHR$(N-A6):: PRINT L$
350 PRINT #2:CHR$(A):A$;CHR$(131);SEG$(L$,S+1,80);CHR$(0)
360 GOTO 350
370 PRINT #2:CHR$(255);CHR$(255)
380 CLOSE #2
390 PRINT : "ENTER "NEW" AND THEN "MERGE"THE TRANSLATED FILENAME:":
":OUT$: : :
400 PRINT "REMEMBER TO REMOVE THE LEADING "!" IN EVERY LINE.: : :
410 END
420 ON ERROR 440
430 RETURN 350

```

## MULTI-DISK INFORMER REVIEW

✓

How many times have you accessed a disk only to find the program or file you wanted was not on that disk? That has happened to me many times. I've had to use the Disk Manager 2 cartridge to locate the correct disk. Sometimes I've had to go thru 4 or 5 disks to find the right one.

Now I've found a better way to keep track of what programs and files are on what disks. J & KH Software now has available a program called Multi-Disk Informer. It allows you to store up to 600 filenames from up to 100 disks.

Two reports can be produced from the program. The first is the file report. It lists the filename, type (ie PGM, D/V80, I/V254 etc.), whether the file is protected, number of sectors, and diskname with the sequence number. The sequence number is just the input sequence of the disk when you create the MDI-file. One nice feature of this report is that you can exclude up to eight filenames from the report. This is especially helpful when you have programs such as LOAD on every disk. The second report is a summary by diskname. It provides such information as: number of sectors used, number of sectors available, number of filenames on the disk that couldn't be read, and the total number of filenames on that disk.

One concern I had was dealing with updating the MDI-file after it was created. Adding information from a new disk is easy. You just load the MDI-file you created earlier and add the filenames from the new disk. If you delete a file from one of your disks and want to update the MDI-file - again there is no problem. You just load the MDI-file you created earlier and insert the changed disk into your drive. A message is displayed asking if you want to : accept duplicate disk, skip this disk, or update disk information.

This program has some good protection features. For instance - if you have requested to save the MDI-file on the MDI disk but you don't have it mounted, you will get a prompt to mount the MDI disk. This saves you from destroying other copies of your MDI-file. Another protection feature I mentioned earlier. That pertains to updating the MDI-file. If you forget to remove the disk you just used and the MDI program reads the same diskname, it will allow you to skip that disk. This prevents you from getting duplicate filenames in your MDI-file.

The only drawback I have found with this program is the documentation. There is little help in the manual telling how to use the program, but it really isn't that hard to follow the prompts from the screen.

For those who don't have a program of this type, I would highly recommend this one.

Needed for this program: X-Basic, 32K Memory  
Expansion, Disk,  
Printer is optional

Available through: CIRCLE W ENTERPRISES  
Tim Wafstet 743-9577  
Price: \$25.95

## TI WRITER CONTROL CODES

Have you ever tried to use the word processor and found that the formatter needs the codes at the bottom of page 47 in the printer TI printer manual? This goes with page 145, 146 of the Writer manual.

Well, here is the answer to what to enter to double strike or emphasize whole pages. This produces near letter quality print for your final letters you wish to send.

First lets talk about the escape code (CHR\$27). In TI Writer you do this with CTRL U FCTN R CTRL U . It will give you a little lb on your screen (this is the ascii code for escape). Now if you want to make the formatter print double strike, put CTRL U FCTN R CTRL U CAPITAL G then carriage return at the top of the screen. It will appear as a small lb and a capital G, then a carriage return. For near letter quality, type a CTRL U FCTN R CTRL U CAPITAL G CTRL U FCTN R CTRL U CAPITAL E and a carriage return (a CTRL B or new paragraph and FCTN 3 gives you a carriage return on an existing document. You will have a small lbGlbEcr at the top of the first page.

For those with Italics, simply place at the top CTRL U FCTN R CTRL U NUMBER 4. Use the same sequence with number 5 to turn it off. Subscript is with capital S.

I have installed the Graphtrax Plus package in the TI printer with the Finger Print package and all of these new features are available to me. (Italics, Subscript, superscript). See your dealer on upgrading the TI printer.

Chuck Wynne  
Vice Pres. Puget Sound 99ers