SOUTH BAY TI USERS GROUP

BITS & BYTES NEWSLETTER *

Mailing Address: P.O. BOX 110037 CAMPBELL, CALIFORNIA 95011-0037

* * * APRIL 1989 * * *

PRESIDENTS MESSAGE
by Mike Ewell

In May, I will be moving to Fremont. This means I will need a little help from someone! regarding picking up the key for the library on the Wednesday before the meetings and getting the key to me or! opening up the library before the meeting.

The demo for the April meeting will not be the Mac Flix demo as mentioned at the March meeting due to time problems. I am spending a lot of time getting my house ready for sale. Come to the April meeting anyway as there will be a demo of ?????

I expected greater interest in the TI-Tax disks based on the earlier interest shown. I reordered the one disk that wasn't in my first order, "More Forms", and when the disk arrived I found out that there is a "More Forms 2" so I reordered that disk. I now have all of the disks. If you need one? of these disks, please let me know soon. These are for use with TIMP!

I have two copies of First Base and I will be selling one of them. I had ordered one by mail and I picked up the other in San Diego at the fair, but when I got back, the other! order had arrived. When I get a chance to play with this program I will give a demo.

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82333232323232323232323232323232323232323265837532667376763333
¦+¦+¦+¦+¦+¦+¦ PLEASE HELP WITH THE NEWSLETTER! ¦+¦+¦+¦+¦+¦+¦
The club could use your help with the newsletter. Ask Bill!!

```
[][][][][][][][][][][][][][][][][][][][][][][][][][][][][][][]
[]                                                          []
[]   The April SBTIUG meeting will be held at 7:14 P.M.     []
[]                                                          []
[]                  THURSDAY, April 6, 1989                 []
[]                                                          []
[]  The meeting will be held in the Saratoga Public         []
[]  Library. The library is located at 13650 Saratoga       []
[]  Avenue. From 280(680), take the Saratoga Avenue exit    []
[]  SOUTH.  The library will be on your left, just past     []
[]  the Fruitvale intersection. This is about four miles    []
[]  from the 280 exit.                                      []
[]                                                          []
[][][][][][][][][][][][][][][][][][][][][][][][][][][][][][][]
```

I suggest the posibility of the club buying programs that it does not already have to put in the library, on the BBS, and in reach of the members. A good source of these shareware or fairware programs is the Boston Computer Society. The price is right. All the club needs to know is if you want to do it and what (type) programs you want to do it with?

I hate to keep mentioning this, but the club needs more info from YOU on what you want to do with YOUR computer. Speak up for your own sake.

¦+¦+¦+¦+¦+¦+¦ PLEASE HELP WITH THE NEWSLETTER! ¦+¦+¦+¦+¦+¦+¦

```
X NOTICE XX NOTICE XX NOTICE XX NOTICE XX NOTICE XX NOTICE X
X                                                          X
X                  MAY AND JUNE MEETINGS                   X
X                                                          X
X  The May meeting will be held on 5-4-89 which is the     X
X  first Thursday.                                         X
X                                                          X
X  The June meeting will be held on 6-1-89 which is the    X
X  first Thursday.                                         X
X                                                          X
X  The first Thursday will continue to be the first choice X
X  for our meetings, but please read the dates carefully   X
X  to avoid a wasted trip or missing a meeting.            X
X                                                          X
X NOTICE XX NOTICE XX NOTICE XX NOTICE XX NOTICE XX NOTICE X
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SBTIUG CLUB OFFICERS AND OTHERS

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SBTIUG BBS	24-HRS/DAY	408/258-3679
*Mr. SYSOP	CHRIS SCHRAM	408/926-4413
*MRS. SYSOP	MARTHA SCHRAM	408/926-4413
VAPORWARE	TRANS PARENT	99/4A-9640
PUBLIC RELATIONS	DON APTE	408/629-0725
ARCHIVER/NEWSLETTERS	HOY COLE	SEE AT MEETING

SBTIUG GENERAL MEETING 2 MARCH, 1989

by Norm Knudsen

The March meeting of the SBTIUG was held at the Saratoga Library on the first Thursday, the 2nd of March, with 15 members and two visitors in attendance. The March meeting one year ago had 22 members and one visitor.

President Mike Ewell opened the meeting at 7:23 PM by requesting a report from Treasurer, Kevin Daberkow, who stated that the current balance was $424.00 after payiny a phone bill of $36.00 and $48.00 for renewal of the P.O. Box. Last year's balance was $530.24.

There are a number of new programs available in the club library according to the report by Helmut Fuchs, our Librarian.

Our Editor submitted his monthly plea for newsletter articles. I wonder if any of us are listening!

Chris Schram reports the BBS is up and operating well and that the 40th user has signed on. (even me)

Don Aptos reported his usual fine rundown of upcoming events scheduled for our area. He stated that the SBTIUG memebership number for the 'Office Club' is 09923621-1.

Mike Ewell reported on some of the goodies at the San Diego TI show. As usual he brought back several new software packages. I'm sure that this means that we have some new detailed reports and/or demos to look forward to.

Having concluded the business portion of the meeting, the group adjorned for an enlightening demo on Mike's new income tax template which runs in Multiplan.

TREASURERS REPORT

by Kevin Daberkow

PLEASE look at your mailing label to see if some color has been added. If your membership expiration date has been high-lighted in RED, this is your last issue until you renew. If your membership expiration date is in YELLOW, then you should renew at the next regular club meeting.

>> THE DUES ARE $15 PER YEAR <<

NOTE: Your membership expiration date can be found on the last line of your mailing label.

If any information on your label needs to be changed, please let me know. Call me at (408) 281-7435 or write to me at the following address:

SBTIUG - Treasurer
P.O. Box 110037
Campbell, CA 95011-0037

There were several renewals in the month of March: John Lewis, Eugene McCabe, Don Apte and James Walker. I would like to thank John, Eugene, Don and James for their continued SBTIUG support.

The club made the following payments in the month of March: $36.06 to Chris Schram for BBS phone bill, $48.14 to Bill Schult for P.O. Box fee and new SBTIUG return address rubber stamp to be used by Pat for newsletter.

The club now shows a balance of $438.96.

Editors RamblingsS

by Bill Schult

I have moved the club's mail box so that it is now closer to my home. I did not mind the distance to the old box, but the number of traffic lights in that 13 miles was something I could not put up with any longer. I do not know how many traffic lights there are, but I seemed to have hit each one of them when they were red!!!

The new mailing address is:

P.O. Box 110037
Campbell, CA 95011-0037

This month we continue with Kevin's tutorial series on 'C' language and also John F. Willforth's series on DISK DRIVES. In this issue, John provides a schematic of a tool that will exercise and test most 5 1/4 inch disk drives. This should be a useful addition to any computer 'hackers' toolbox. I hope to have one finished in a short time, provided I can find the time to work on it. I am like almost every one else, I have too many irons in the fire at the same time and something has to wait.

We are still in need of more articles for the newsletter. I greatly appreciate the articles that have been submitted since I have been the newsletter editor. We have a great deal of talent within our group. These articles may be of anything that might be of interest to the members of the group and the TI community at large., Here is your chance to become an author.

I am enclosing a short puzzle that I hope will prove to be stimulating and perhaps challenging to our members.

PUZZLE

A man walking along a road has some apples. He passes thru a gate and he leaves half of his apples plus half an apple at the gate.

Continuing along the road he comes to a second gate and again he leaves half of his apples plus half an apple.

As he Continues along the road he comes to a third gate and he again leaves half of his apples plus half an apple. He is now out of apples.

He did not eat any apples, cut any apples or throw any apples away. How many apples did he start with?

'C'ing is Believing - Part IV
by Kevin Daberkow

The fourth in our series of C articles will deal with the use of functions. A function provides a convenient way to encapsulate some computation in a black box, which can then be used without worrying about its innards. Functions are really the only way to cope with the potential complexity of large programs.

So far we have used only functions like printf, getchar and putchar that have been provided for us; now it is time to write one of our own. Since C has no exponentiation operator like ** of Fortran or PL/I, we will write a function power(m,n) to raise an integer m to a positive integer power n. The program is as follows:

```
010 /**************************************************/
020 /* The main() program will exercise a function   */
030 /* power(,) and print results to the screen.     */
040 /**************************************************/
050
060 extern printf();
070
080 main()
090 { int i;
100   for (i = 0 ; i < 10 ; ++i)
110     printf("%d %d %d\n", i, power(2,i), power(-3,i));
120 }
130
140 power(x,n) int x, n;  /* raise x to the n-th power */
150 { int i, p;
160   p = 1;
170   for (i = 1 ; i <= n ; ++i)
180     p = p * x;
190   return(p);
200 }
```

As always, the line numbers are for reference purposes only and should not be edited into the file. I will proceed to discuss the lines of interest.

PROGRAM EXPLANATION

060: The c99 extern statement provides a reference to an externally defined function, namely printf().

080: Start of the main program.

100: FOR loop used to exercise the power(,) function ten times.

110: This printf() statement prints out the following values for each iteration of the loop:

i , 2 ** i , -3 ** i

If i = 2 then the values would be: 2 , 4 , 9

120: End of the main program.

140: Start of the power(,) function definition. Included on this line are the function arguments as well as their declarations. The argument declarations go between the argument list (in parenthesis) and the opening left brace; each declaration is terminated by a semicolon.

150: Definition of local variables.

160: Initialize variable p to the value 1.

170: This is the FOR loop which is used to generate the final answer. This is accomplished by looping n times, each time multiplying variable p by argument x. The final result is the same as: p = x * x * x * x, where the number of x's is determined by n.

190: Returns the final answer p to the calling program.

200: End of the power(,) function definition.

COMMENTS

The functions can appear in either order, and in one source file or two. Of course if the source appears in two files, more will have to be done to properly compile and load the program. For the moment, we will assume that both functions are in the same file, so what you have learned about running C programs will not change.

Each call in main() passes two arguments to power, which each time returns an integer to be formatted and printed. In power the arguments have to be declared appropriately so their types are known. As stated earlier, the argument declaration go between the argument list and the opening left brace; each declaration is terminated by a semicolon. The names used by power for its arguments are purely local to power, and not accessible to any other function (other functions can use the same names without conflict). This is also true of the variables i and p (the i in power is unrelated to the i in main).

The value that power computes is returned to main by the return statement. In c99 a function can only return an integer value. This differs from standard C which is not thus limited.

OPERATION

Once the above program has been compiled and assembled, the object code can be loaded as discussed in our first article along with the CSUP and PRINTF code provided by Clint Pulley. I am sure that you are all quite familiar with this process by now, so I won't bore you with the details. When the program is run you should get ten rows of three numbers. The first number indicates the value of n used in power(x,n). The next two numbers are the values two and minus three raised to the nth power.

Till next time . . . .

DISK DRIVES (#2)

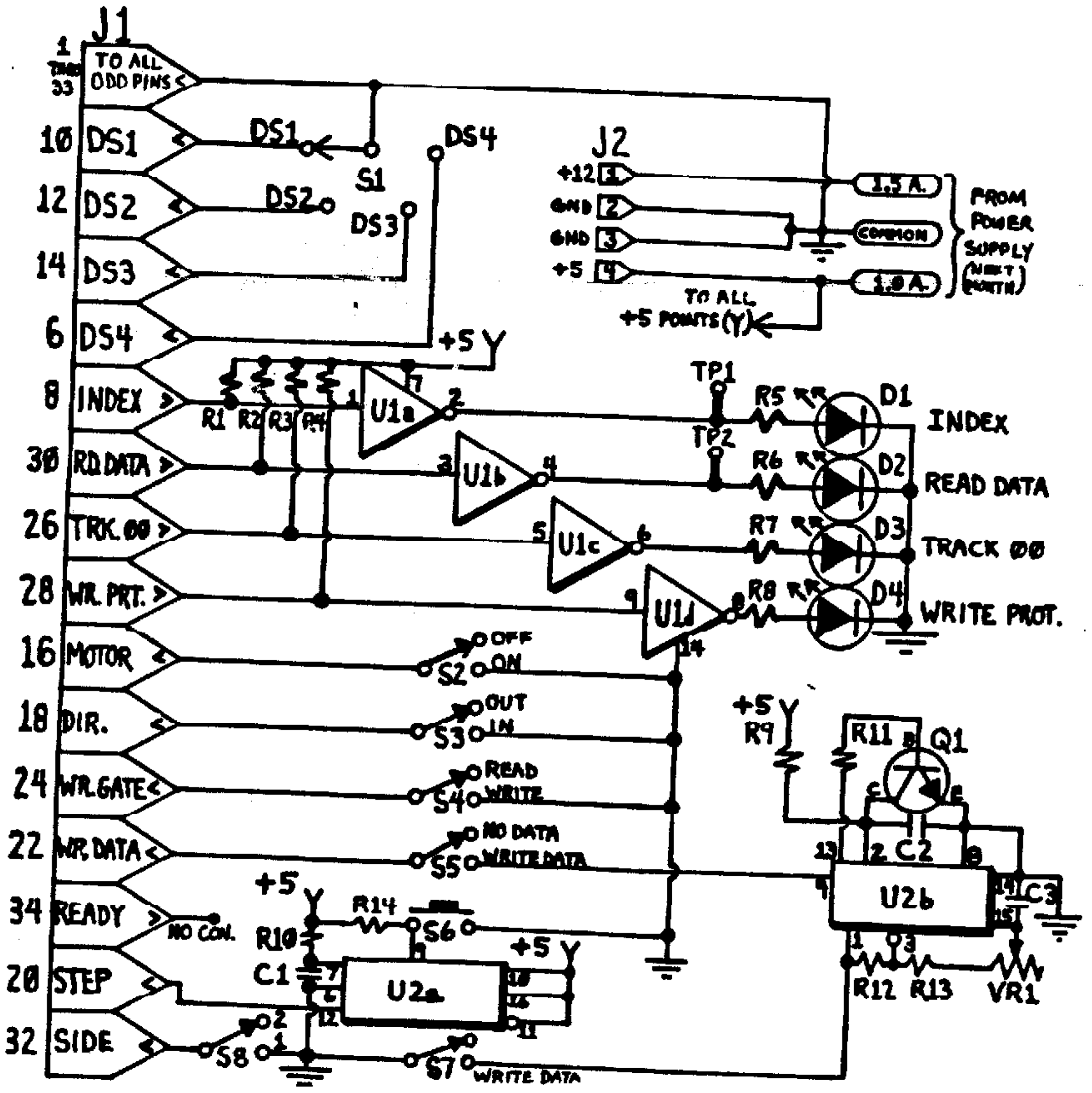
by John F. Willforth
reprinted from PUG PERIPHERAL

Last month I rambled on about the function of disk drive in the scheme of things. This month I would like to show a tool to exercise and test most single and double sided 5 1/4" disk drives as well as later show modifications to enable it to support 3 1/2" drives. This unit is designed to support SA 455 (Shugart). TI, IBM, COMPACQ, etc... All clubs should at least have one to test and repair their drives.

This unit can check the selection of units check the motor circuit, check all sensors, and write, read, step in or out, as well as select head (side). The use of this tool is increased with an oscilloscope. With next monts article, I'll include a power supply schematic.

PARTS LIST

C1, C2 = 470 pf Capacitor
C3 = 1 ufd Capacitor
Q1= 2N2222 Transistor
D1,D2,D3,D4 = LEDS
R1,R2,R#,R4 = 150 ohm 1/4 W
R5,R6,R7,R8 = 1.5K 1/4 W
R9,R10 = 10K 1/4 W
R11,R12,R13,R14 = 4.7K 1/4 W
VR1 = 50K Potentiometer
U1 = 74LS04
U2 = 74LS123
S1 = 4 Position Rotary Switch
S2,S3,S4,S5,S7,S8 = SPST Switch
S6 = Push Button Switch
J1 = 34 Pin Card Edge Connector
J2 = $ Pin Power connector
TP1,TP2 = Insulated Test Points.



TECH TALK by Mike Maksimik From the Chicago TImes

Some of you may have followed TI's developments in the time that the 99/4A was at it's childhood. All sorts of plans, marvels, new things for the home computer that "was ahead of it's time." There were several peripherals developed by TI but were only released in tiny quantities, mostly to the TI employees that got the pick of the crop. Some of these never made it to the production lines, but only a few prototypes survived.

The modem card, which essentially was a Novation Cat 300 baud modem, was placed on a peripheral card, and a DSR ROM was given it to control very low-level functions, such as modem-to-vdp RAM interrupt routine, powerup routine, etc. It would work with a command module, like TE II just as the disk manager module works with the low-level routines in the disk controller to perform the DOS functions. Only a very few of these survived. Another little known card was the IEEE 488 bus controller card. It contained the TMS9914 GPIB (general purpose interface bus) that allowed the lab and mechanical equipment that used GPIB to interface to the TI. One could access the GPIB like a file device. This same standard is found in unexpected places. Any of you have a commodore 64? The communications bus used to connect it's ring-style bus of peripherals is a modified GPIB, one of commodore's own design. The SCSI interface (small computer systems interface) is essentially a multi-GPIB, allowing very fast buffered serial transfer between storage devices. SCSI also has interrupt lines to alert the host that data is waiting to be read or written. The VCR controller, a $500.00 range peripheral, along with support software, was introduced as a means to combine video from a VCR and the video from a TI. The card would control playback, hold, framing, and other functions. Digital Research created a similar product to control videodiscs that attached to an apple or a commodore 64, although much later than TI's development. The debugger card, a little known device, was in existence when the 99/4A was born. In fact, it's design can be rooted to the support hardware in the 990 minicomputer series. Essentially, the TMS9900 is a minicomputer on a chip. The editor/assembler GROM was a virtual image of the DX10 assembler used on the 990 minicomupter. Some directives one would only find on a minicomputer exist in the editor/assembler package, but were dormant in the 99/4A. The debugger board was designed to bring the 99/4A closer to a minicomputer's environment. The DEBUG program, included with the editor/assembler package, has several features that cannot be used without this piece of hardware. In fact, the editor/assembler looks as if it was taken direct from a 990 itself. The only added features were the GROM utilities, sucha VMBW, DSRLNK, LOADER, etc. that didn't support the features that a 990 could handle. It's too bad that TI wishes to keep the plans for this card on ice, it would be a dream to program with. It allowed multiple breakpoints by using the XOP 3 opcode, which would allow you to step your program through and look for errors or miscalculations. Although we can do this through software, the debugger board used a hardware approach. The design of this board, and what it contained, are up for grabs. If anybody knows, i'd appreciate you sharing with the rest of us. Send me a letter. Still another rare peripheral was the GROM library peripheral. It essentially was a super-widget that could access ALL of the GROM in the cartridges. This would be handy for TI BASIC, since TI BASIC searches external GROM for subprograms. TI extended BASIC does this too, but doesn't search DSR ROM when a program is running. Modules like TE II, personal record keeping, and extended BASIC could all be plugged in and the CALL routines could be accessible to BASIC. BASIC could use the commands it wished to whatever, and all you had to do is plug your favorite "flavor" modules into the library peripheral to get the necessary language expansion. Imagine a GROM cartridge giving advanced graphics to TI BASIC, another for print spooling, still another for expansion memory control. Others for high speed cassette routines, etc. so the language could expand by adding cartridges. It's the same technique used with the peripherals: the computer never becomes obsolete, because it automatically responds to any new device attached. This is true of the library peripheral. This is another device I would LOVE to see.

Some of us have the HEX-BUS controller. In the days of the 99/2, the CC40, and the 99/8, the hex-bus controller was introduced for the 99/4A to allow compatibility with these devices. Essentially, they were designed like the commodore 64's peripheral system, where a slow serial transfer was appropriate for the hex-bus devices, a disk drive wouldn't be feasible. So TI never considered the HEX-BUS disk drive. The Wafertape drive, the CAT modem, the RS232/parallel interface, and the 4-color printer, were all developed. All were battery operated and could fit in a briefcase, as did the CC40. For the 99/4A, it was an inexpensive means to expand.The hex-bus controller was a small device containing a DSR ROM that controlled the I/O drivers which "spoke" to the hex-bus peripherals. Since the main use was for the CC40, it wasn't pushed for the 99/4A. The 99/8 could also rely on the PE BOX for it's devices. It had it's own special FLEX CABLE card, which used some special control lines to expand it's own capabilities. Since the 99/8 used a TMS9995, the same as the GENEVE, it could use the extra 3 address lines in the PE BOX, giving a total address space of 2 to the 19th power, or 512 k of directly addressable memory. Since some of these banks were probably switched, the address space grew to a total of 4096 k, which is sufficient for MOST of my needs. The speed of this processor was greater, and it's throughput was even greater, but more on that later. Some other control lines were used, some to indicate a 9900 or a 9995 present in the system, some to allow multi-level interrupts, still others to initiate HOLD sequences, which are found on the mainframes, and large multi-user systems as a way to deal with wasteful processing, and interrupt idling. TI had a HARD DISK controller in the plans, probably MYARC's, but the technical data I have is 1982. I own a rare card. Some of you may remember a company called A/D electronics, out of Sacramento, California. They produced a control card which allowed sampling of environmental data through an 8-bit analog-to-digital controller. This device allowed hookups of many items, such as temperature probes, light transducers, etc. and was mainly used as a scientific device. Some possible uses included home control, because it also contained a real-time battery backed clock. Plus, there were separate digital inputs and outputs, for switches and relays, respectively. My main use for the A/D card, FIRST ADE, is a mouse. The RADIO SHACK color mouse contains two potentiometers turned by a rolling motion of the mouse. The potentiometers, when interfaced with the ADC0809 chip, (two channels, x and y) gives me mouse control with TI ARTIST. I wrote the DSR myself, and have been using this device for about a year and a half. The MBP clock card is a similar device, although it does not contain a digital input or output array. The ADE card, however, could also switch external relays, or sample data on 16 lines (8 in, 8 out). If timing was correct, an 8-bit parallel interface was possible. I still use this card, and the clock is handy for keeping my p-system master disk up-to date. The FORTi music card was a device which allowed one to produce sound on not one but 4 extra TMS9919 sound generators. By arranging the frequencies on the 12 music channels available, different waveforms were possible. Now, with the FORTi, sounds even a c-64 owner could envy were possible. And, there were 4 percussion channels independent of each other. I can imagine "AXEL-F" running on this card!! And of course, we all know of the more common peripherals, the triple tech, the disk controllers, the 32k cards, the rs232 cards. Even these make our computers sophisticated enough to meet TI's long dead expectations. I also own the p-code card, and another article is devoted to THAT!

Continued in TECHTALK/2 **

TI-WRITER TIPS

by John McCleary
reptinted from Southwess Ninety Niners

FORMATTING

I still remember my great frustration the first time I tried to format the TI-Writer to give me what I wanted from my printer. I'm just thankful I was a member of the Southwest Ninety-Niners here in Tucson, Arizona because we have a great mix of people in our users group and I needed the help of a programmer. Danley Franks came to my rescue that day and told me how to get what i wanted. TI-Writer is a good word processing system from my perspective with only a few shortcomings, one of these is somewhat inadeq;atae documentation. My problem was by not being familiar with TI-Writer and needing to use all of the avaiable characters for the document I was writing. My lack of familiarity and need to use all characters eliminated key transliteration (.TL see page 107 of the reference guide for TI-Writer). Enough history, heres the tip.

My epson printer frequently calls for CHR$(27) [the escape command] followed by another symbol in order to communicate with the printer. If I were writing a program and wanted emphasized print mode I would write...CHR$(27)"E". This would turn on the eemphasized mode in the printer. But how could I do this within TI-Writer? I could trnsliterate but would lose the use of a symbol or have to go through all sorts of gyrations to get it back. The answer was simply use the following while in TI-Writer: hold down control and press the letter "u" (the cursor changes from a box to an underline and the computer is set for special character mode); hold down the function key and press the letter "r" (this special chara ter is the ASCII code for 27, see page 146); hold down the control key again and press the letter "u" (returns you to normal box cursor); hold down the shift key and press the letter "E". Your command is now complete and will be read by the printer as CHR$(27)"E" it will turn on the emphasized print mode but won't be printed when you print the document through the Formatter.

For other special functions you may not need to use CHR$(27) followed by a symbol but just CHR$(n). For example to turn on compressed printing requires only CHR$(15). To transmit this to your printer from TI-Writer simply press letter "u" while holding down control and then find ASCII code 15 in column one on page 146 and press the keys as indicated in column four to send CHR$(15). In this case you dold down the shift key and press the letter "O". Any combination of special insrtuctions may be sent in this manner.

One caution, although these characters won't be printed they may be read by the computer and figured into the line on which they appear as characters if the line contains characters. This means blank spaces at the end of your line. This is easily avoided by placing these control codes on their own line without an end paragraph symbol. In this way the computer ignores them and won't even put in an unwanted extra line space. But be certain these symbols aren't on a line which begins with a period for the computer doesn't send information on such a line to the printer.

I prefer this method to transliteration as it is faster in set up and doesn't limit my use of the characters and symbols availabale in any document. If you haven't tried it, give it a shot the next time you use TI-Writer. If nothing else, this method and transliteration allows for increased flexibility. One final note, I load in partial files all the time with previously set up formatting commands. It saves making errors and cuts down on the time it takes to do any word procesing.

CENTERING

If you know how, it seems so easy, but if you've never done it, then you feel as if it were some deep dark mystery only known to sages. That's the way centering appears to be for many TI-Writer userw. Let me share the "secret".

Centering is most easily done using (.CE n)the formatting command, where the period appears as the first entry on a line [so the computer won't print that line] followed by CE in caps, for center, and ending with a number [n] to define the number of lines to be centered. It's really that simple but there is one catch! You must define your margins with formatting commands also. That means knowing what those same margins will be when you change font sizes too. Our newletter is a good example of that. The title and month are done in Expanded mode while the rest of it is done in Elite. To get the centering correct in these two type styles you must know that there are ONLY 40 characters per line in Expanded type compared to 96 in Elite. This means when you change fonts you must change mnargins as well. THAT, is the BIG secret! Just remember that Expanded mode prints 40 characters per line, Pica 80, Elite 96 and compressed 132. Knowing this define your margins and centering will work every time

PAGE NUMBERING

Have you ever wanted automatic page mumbering from TI-Writer placed somewhere other than the left corner of the page? It's easy. Follow the normal commands for either a header or footer (.HE or .FO) placing the command on its own line. Then determine where you want to place the page numbers, based on 80 columns when using pica or 96 columns when using Elite and use carets (required space markers) between the command and the percent sign (%) use to format page numbering. This allows you to place the pahe number anywhere for Pica and at least centered for Elite. It works like a charm. Unfortu;nately, it is inoperable when using 132 column Compressed type.

EDITING OPERATIONS

Are you a hunt and peck typist or do your fingers fly over the computer keyboard. Well if you are a fairly good typist you ought to pay attention to the TEXT EDITOR-EDITION OPERATIONS as found in the man;ual and on the Quick Referenc Card. using the Control Key and one other a touch typist can literally fly through editing operations.

There are fully two pages of operations listed on the quick reference guide. Knowing these functins is the key to fast and easy word processing. Take the time to study and learn each of them . The payoff will be faster word processing and fewer errors.

Floppy Disk Maintenance
reprinted from Word Play Newsletter

As everyone is aware, all computers using external storage systems relay on magnetically created electrical impulses for their memory. Whether using cassette tapes, cartridges, floppy disks, hard disks, or other storage systems, these impulses are what make computers function. The physical devices that accept and hold the magnetic code are called the media. And all media require periodic attention.

If you've ever tried playing a "wrinkled" cassette tape on a cassette recorder, you know there is a problem. Besides producing a skip at the wrinkle, the tape will be weakened in that spot and will eventually break.

The same holds true with magnetic media used for computer storage. Both the media and the programs and data they contain may be damaged or destroyed by such things as heat, static, magnetism, polluted air, chemicals, dirty drive heads, grease or oil from fingertips, excessive humidity, excessive dryness, etc. Even brand new media is not exempt from these problems. Older media is subject to more problems, such as the base material holding the oxide may turn brittle and become useless with age. The adhesive holding the oxide to the base may deteriorate. Or possibly the software may just wear out with use.

The magnetic media can easily be damaged through abuse or negligence. Therefore, it is important that you be as careful as possible in your handling of it. This means running regular maintenance checks to keep your media in shape and doing such thins as cleaning the heads of the disk drive and keeping your computer work area as clean as possible. And most important, get in the habit of making back up disks for all of your software.

The following are some rules that you shold follow to give your disks and cassette tapes the longest life span as possible.

1. Always store you media in dust proof, non-metallic containers.

2. Avoid touching the magnetic surfaces of the disks or tapes.

3. When labeling a disk, write on the label before putting it on the disk. use a soft-tipped marker, and make sure the ink is dry before putting it into the drive.

4. Store all media away from sources of heat, as well as from humidity. (this means that the basement is not a good home for your computer!)

5. If you just walked across the room dragging your feet on the carpet, first discharge the static electricity by touching a grounded metallic object before you pick up a disk.

By Fred and Amy Mackey
Tacoma Users Group