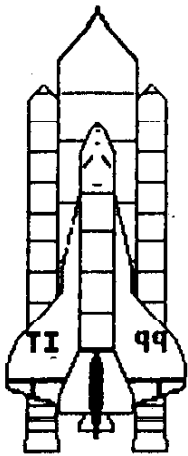


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B. U. G.

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Palm Bay, Florida

32906-1402

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BUG VOLUME 2 NUMBER 4

JULY 1984

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## PRESIDENT'S MESSAGE

The month of June has come and gone and the BUG has celebrated it's first birthday. As you know, the membership has expanded the charter of the BUG to include other computer systems. As a result, I have asked Jim Baker to be the Chairman of the MS-DOS Special Interest Group (SIG). I am looking for a member willing to be the chairman of the TI SIG. How about it?

The structure of the club will change somewhat in order to accomodate other systems, but for the most part, it will be transparent to the members. I expect to establish SIGs for each of the major areas of interest, as determined by the membership. For systems that use an operating system that is common between many types of computers, I think a SIG based on operating system is the best way to form. For systems, like the TI, that have a proprietary operating system, it makes no difference. In any case, members will have the choice of the group they wish to share in, and may move from group to group as they desire - all for the same membership fee. This allows members with more than one system to benefit from all the areas of interest. In addition, it will allow the member who is contemplating the purchase of another computer to see what the rest of the world is like before buying. The times ahead will be very exciting, rewarding, and busy. I ask you once again to help in any way you can.

TI SIG: In the month of July, we will continue our series on TI-Writer. Again, those of you interested in this very powerful word processor, bring your questions. I hope you have used it some since the last meeting,

because the best way to help you is to answer your specific questions.

MS-DOS SIG: Jim Baker will start the MS-DOS SIG this month by describing some very interesting software that will become available to SANYO owners throughout the next year. Jim will be setting up the SIG at this meeting, so for those of you interested in this group, please come and help us to create the group you will want to be part of. We need technical experts, novices, and all people in between to contribute articles and information to the newsletter, and assist in various committees (i.e. software library, education, program, etc.) I have met several of the new members and, frankly, I'm impressed. I know there's a lot of talent out there - how about helping the rest of us?

GENERAL: Well, we must always take the good with the bad. I recently purchased and reviewed some software from a company that shall remain nameless. I thought I would be Mr. Niceguy and give them an opportunity to refute my comments and offer editorial space for their rebuttal, but it appears they threatened to sue me instead! As soon as I get a reading from my lawyers as to my legal position, I'll pass all that "good" information on to you.....one word of advice: To save a lot of time and money, the software consumer (you) should check with your local user's group before you buy. The laws protect the manufacturer - not the consumer!

One more thing - there seems to be a lot of confusion as to our meeting times and dates. Remember, our meeting is always the third Monday of each month at 7:30 PM at the Satellite Beach Civic Center. See Ya!

LARGE PROGRAMS

by Chuck Wynne  
 (From the ROM Newsletter, reprint from JUG newsletter)

Some of you may have found a program that will not load from cassette when you have the box attached. The tape stops immediately with a data error just after the tone. This is because the first thing on the tape is the size. If the program is larger than what the computer can handle, it simply won't load it.

To save such programs on disks, disconnect the peripheral expansion box from the computer (power down FIRST). Then load your program from tape. Use Extended basic if you can. Delete lines until you have recovered about 2K bytes (the overhead for the disk). Save it on another cassette. Power down and reconnect box (onto computer). Then load your 1/2 program back into the machine. Save it on disk in Extended Basic in MERGE format (SAVE DSK1.progname,MERGE). Power down again. disconnect box again and load the big program tape again. This time delete the other half of the program and save it on the tape. Then power off, reconnect box and load this half. Merge the other half from the disk using MERGE DSKQ.progname. Save the completed program to disk under another name.

Some of these may be too large to be reloaded back onto tape (a disk error). In order to run others, you may have to use CALL FILES(1). then NEW. before you load your program.

I have found that you can turn off the disk system by using the statement CALL INIT. CAL LOAD(-31888,63,255). This does nothing for your programs on disk as you cannot retrieve them. However, it does turn off your disk drive and recovers memory to load to and from tape without powering down. With big programs merged on the disk, use this load to recover enough memory to load back to tape. The mini memory will allow this when you are in basic. Otherwise you will get an ERROR 03. This method of removing the disk will still allow you to use your RS232 for printing. Perhaps some of you will have some other uses for this.

A lot of people, specifically in Cocoa area, are not receiving their newsletter until after the meeting. I apologize for the inconvenience. However, it is as I have said before. Due to the fact that there is not any available or willing assistance in the newsroom to collate and type information, to edit and-paste together the master copy, to copy-staple- or mail the newsletter, I am doing the job by myself. Also, not only am I not receiving the information prior to the First of the month which would enable mailing by the 3rd or 4th, but also the very fact that we are now mailing the newsletter by the cheaper rate -BULK- is a hinderance to your receiving your newsletter on time.

The only answer that I can see is to limit the size of the newsletter and require that all material must be received by the 25th of the month for publication in the following months' newsletter.

Therefore notice is hereby given that the above mentioned conditions will now be employed. The only exception considered will be our advertisements, which must be copy-ready and received no later than the First of the month for publication in that months' newsletter.



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Recently we have found some interesting things when using the Extended Basic with the 99/4A console. For instance, try this:  
 10 FOR A=1 TO 100  
 20 PRINT A  
 30 NEXT A

Let's count the keystrokes...39. Now type LIST. What we get is an exact exho of the program we typed in above. Now let's try something a little different. Type in the following:(For the purpose of the indication of when to hold down the control key and type a letter, we will use the following symbol: "@". This would mean if you see @C, you would hold down the control key while depressing the letter C on the keyboard.)

10 @L (ENTER)  
 20 @; (ENTER)  
 30 @V (ENTER)

Now type list. Your screen should read:

10 FOR  
 20 PRINT  
 30 NEXT

Now let's take this series a step further. This time let's use our old friend the REM character(!) and type the following:

10 !@LA=1@1100 (ENTER)  
 20 !@;A (ENTER)  
 30 !@VA (ENTER)

Now type LIST. As you can see, you now have our original program on your screen preceded with (!), the REM statement. If we were to remove the (!) REM statement either manually or by using a program to do so (this can be done with a disk system only) and type RUN, the program would execute in the same way that our original program did.

Although TI informs us that this was not their original intention for these functions and that they do not recommend this type of programming method, we have used it in several programs and find it to work quite well. For your convenience we have listed all of the hidden statements and the keys the letter to make them operate. Try working with this yourself. If you find any other uses we missed, please let us know.

KEY	STATEMENT	KEY	STATEMENT
1	TO	?	STEP
5	:	6	)
9	OPEN	0	THEN
W	READ	E	GO
Y	DELETE	U	RANDOMIZE
P	TRACE	/	AND
D	IF	F	GOTO
J	DIM	K	END
Z	REM	X	STOP
B	::	N	BREAK
3	,	4	;
7	(	8	OPTION
=	CALL	Q	UNTRACE
R	INPUT	T	RESTORE
I	DEF	O	UNBREAK
A	ELSE	S	DATA
G	GOSUB	H	RETURN
L	FUR	;	PRINT
C	!	V	NEXT
M	LET	.	ON

NOTE: The above was tried in BASIC and it works, but only if you always use the REM statement first on the program line. Computer will not accept a control key character by itself, as in extended Basic. You will get an error "BAD NAME" if attempted. Try ideas for removing the ! or REM from statement lines after program is listed.

TIDBITS OF TIPS...  
 (continued)

(From the 99'ERS USERS GROUP ASSOCIATION in Bakersfield, Ca.)

One of the LA99er members, Jay Raven, has put together a TI index for the Gemini 10 and 10X printers. This is now an Addendum to the Gemini manual. Owners of the printer can obtain the manual from:

STAR MICRONICS INC.  
 3 OLDFIELD  
 IRVINE, CA. 92714

## SOFTWARE LIBRARY

Many changes has occurred this month with the Brevard Users Group. We have expanded to include all forms of computer hardware. The TI 99/4A is no longer the only hardware device that our group will support. This expansion will only help us to bring people together with a common interest. The TI will still take a front row seat and we are still striving to let all those third party software and hardware folks out there know that their is a viable market for both programs and hardware for the TI.

The software library will continue to provide constant program support for our users. A new form will take shape for the software library and because of this continued volunteer support will be needed. As it stands now the library will support the TI 99/4A(run by myself and my volunteers), MS-DOS(run by Jim Baker), and CP/M(run by TBD). With the edition of MS-DOS and CP/M software a need exists to acquire some programing expert volunteers. Many programs that exist on one library can be slightly altered to run on another. Thereby expanding the the libraries even more.

I want to take this opportunity to thank Pat and Don Koranda for running the software library during our last meeting. With only one afternoon of tutoring they managed the software library beautifully. I will be depending upon them in the future. I want to continue having a software library meeting every month. This month it will be on 15 July. I need a good turnout for this one because I will be conducting a training session on some of the operations of the library. I will also need an RSVP on this so that I can make up some packages before hand. These packages will include at least two diskettes of software and the program you will need to make out the description of the programs on the diskettes. I will also make up some cassette packages if I get some individuals who do not have a disk system. Like last month the meeting will be at my house around 2 p.m.

**KINGS OF THE CASTLE** (Copyright 1983 by CYDEX SOFTWARE) is now in and will be the subject of this month's program report. This program was sold to the users group, we paid \$35.00 for it, and we were given a

software license to distribute it to our members. The license is very explicit on members only. (no unauthorized copying out there!). I checked it out and believe me it was worth the purchase.

A new Assembly Language utility was sent to us by Texas Instruments. This is an expanded version of the ebugger and vastly increases the capability to debug assembly language programs. It will be available in the library during our July meeting.

Due to the extra work involved and the expense of reproducing the following library programs will carry a larger service charge than the normal charge. King of the Castle--\$5.00, TI-Advanced Assembly Debugger(Super-Bug)(Copyright 1982 by NAVARONE INDUSTRIES)--\$5.00, and TI-Forth--\$10.00. TI-Forth will come with a manual(As long as they hold out), King of the Castle will come with a set of loading instructions, and Super Bug includes a help file that has instructions(I will have a few copies of these for those without a printer.).

JIM HILLEY (home phone for the RSVP's : 725-8371)

## KATHY'S KORNER

A year has passed since we first organized the BUG. I wish to take the time now to thank the past board for their conscientious support of the club during the past year, and also welcome the new or returning board members.

Please note that the assembly article by Dave Ramsey is being continued in this issue.

Upon embracing the Sanyo computer owners into our club, we are truly on the path to become a generic user's group. This widening of our horizons will enable the growth not only of the club but also of computing knowledge. One past board member, Jim Baker owns a Sanyo computer and is the chairman of the Sanyo special interest group. A software library will be developed for the Sanyo users in the near future.

## PROGRAM OF THE MONTH

**KING OF THE CASTLE** (Copyright 1983 by Cydex Software) - You are a Norman King asleep in your castle. Suddenly you are awakened by the horns of viking invaders. You rush downstairs to discover that your guards and servants have run away. You are under attack and outnumbered. But you have some tricks up your sleeve. You've recently returned from a trip to the Orient. There you learned from the Ninja how to make gunpowder and mastered Oriental weapons. You defend yourself with throwing stars and land mines, battling vikings throughout the various rooms, up and down the stairways. Don't forget the secret passageway!

### IMPLEMENTATION

King of the Castle is written in TI9900 Assemble Code. Software written in assembly code executes much faster than TI Basic. In order to implement this game you need additional hardware. Implementation of King of the Castle on a TI/4A requires one of the following configurations:

- 1) Cassette recorder, Mini-memory, and joysticks.
- 2) Disk drive, Mini-memory, and joysticks.
- 3) Disk drive, 32K memory, Editor Assembly, and joysticks.
- 4) Disk drive, 32K memory, Extended Basic, and joysticks.

### OPERATION

You are in a two story castle. You start upstairs. There is a stairway located in each of the 4 corners of the castle. Additionally, there is a secret passageway located in the center of the 2nd floor where you begin. The secret passageway connects to the outside of the castle. Entering the stairway or the secret passageway will instantly transport you; either to the other floor or outside. This can be disconcerting at first.

The vikings will first invade the ground floor. They can also use the stairways, but usually can't find the secret passageway. You can go downstairs or outside to attack them or you can start out by attempting to defend the top floor. However, you can not simply wait for them to

come to you. To get them all, you must go after them.

The vikings attack singly and in groups. Contact with a viking results in damage points being awarded against the king and destruction of that particular viking. 10 damage points ends the game. The king can deduct damage points by surviving waves of vikings.

The king defends himself in 2 ways: He can throw spinning stars at the vikings with the fire button -or- lay minds in the vikings' path by pressing the space bar. The king receives 100 points for every viking destroyed. At the end of the game the highest score is shown.

King of the Castle is a game demanding skill with a joystick. But skill won't be enough. You will discover that some strategies will work much better than others. GOOD LUCK!!!

JIM HILLEY

### BUG Hall of Fame

Because of the enthusiasm at the last meeting we now have some new scores to honor. If you wish to try your luck or show your skill, come to the next meeting and bring your favorite cartridge. Due to space limitations, only the games available in cartridge form will be considered.

The score must be verified by one of the judges before the score is accepted. If you can't make the meetings to show your mastered talents then the score must be verified by a picture and submitted to the BUG. To be fair, two categories have been established: Children (15 and under) and Adult. Once listed, your score will remain on the list until another member beats it.

#### ADULT:

Norman (Mike) Blalock - Parsec - 274,400  
 Kathy Frye - Hopper - 32,420 Level 10  
 Gail Hilley - Munchman - 257,420 Level 75  
 Gail Hilley - Burgertime - 580,000 Level 143  
 Mike Walker - Moonmine - 48,460 Level 17  
 Mike Walker - Tombstone City - 290,700  
 Patti Williams - Ms Pac Man - 39,200

#### CHILDREN:

Michelle Blalock - Alpiner - 11,504  
 Ray Schneible - Pac Man - 28,760  
 Christi Walker - Car Wars - 26,910  
 Julie Walker - Attack - 29,550

The following article is  
a reprint from Washington DC  
area newsletter.

UNDER THE HOOD

PAGE 6

DAVE RAMSEY

This is the second edition of a new assembly language column right here in our own newsletter. The primary emphasis of this column, at least for now, will be on the introductory level. There are many people out there who are anxious to learn assembler but who don't know how to get started. Almost equally large is the group that knows the difference between a bit and a byte but who can't find good introductory material for the TMS 9900 series chips. Hopefully, we will be able to point all of you in the right direction and get you off to a good start.

First off, let me point out what I think are useful books for the assembly language programmer to own. The first, of course, is the Editor/Assembler manual from Texas Instruments. As any of the more experienced assembly programmers can testify, this book does have its faults. However, it is good as a reference for each of the assembly opcodes. In addition, it does explain things such as the sprites, screen graphics, sound and speech, and linking between your assembly routines and TI BASIC and Extended BASIC. The second book that I strongly recommend is the Introduction to Assembly Language for the TI Home Computer from Steve Davis Publishing. It progresses from binary and hexadecimal numbers to high speed assembly language sorting routines and assembly file management routines. It is definitely a book to have if you are into how your TI-99 works.

A third recommended book is The Software Development Handbook from Texas Instruments. Although it was not written specifically about the 99/4A it does cover TMS 9900 assembly language. It contains many tips and tricks for the intermediate to advanced programmer as well. After you begin to write assembly routines, this would be a welcome addition to your desk references.

Last but not least, I must urge you to go out right now and send your check for \$12.00 to the International Users Group. Despite the fact that Enthusiast '99 is not a "book", it does contain Bill Gronos' column, The Assembly Line. This column is packed with information that the beginning assembly language programmer can use. Additionally, he has been working on something that he has chosen to call Gronos' Assembly Translated BASIC or GATB for short. It provides the beginner and old pro alike with some "canned" assembly software routines that can be accessed with simple branch and link (BL) or branch and load workspace pointer (BLWP) instructions. Once the canned routines are typed in, the main program loop begins to resemble a strange version of BASIC branching to routines with such names as PRINT or SPRITE or COINC. If you are a novice assembly programmer then by all means get started with GATB. (And don't forget to go out and order the back issues. Some of the GATB groundwork has been published already.)

Another point is in order in this first column. I am using the Editor/Assembler package with the 32K RAM card and one disk drive. Those of you using the MiniMemory Module (MMM) will be at somewhat of a disadvantage when reading this column. I make full use of the fact that the E/A supports six character labels. In addition, you

will find my programs to be heavily commented, another feature unavailable to the MMM owner. Finally, I am not familiar with the differences in addresses in the E/A and the MMM. I have read that there are a number of differences but their exact nature is unknown to me.

This month I want to continue with the series that I started last month. The subject of this month's column is a sprite motion routine is assembler. Although the accompanying listing is somewhat long it is easily understood by referring to the comments in the code.

Basically, the routine works as follows. First, it reads the joystick using the KSCAN routine. The routine must of course be prepared as I stated last month by placing the appropriate value in memory address >8374. In this case, since I want to scan joystick number 1, I insert a value of >01 in that location. Upon return from the KSCAN routine, I can find the Y input from the joystick at location >8376. If this is 0, I want to bypass the portion of the routine designed to adjust vertical screen position and I would branch to XCOORD. If it isn't 0, I find the value and branch to the appropriate module to process that input. Either way, upon completion, I find myself next at XCOORD. This series of routines will check for X input from the joystick and process it accordingly. Regardless of what type of input is found, all of the routines jump to the end routine and return control to the main program loop.

This particular block of code was written by me to aid me in writing larger assembly routines. It allows me to write BL @JOYST in my main program loop and not worry about writing a complete routine to process that input. I maintain it on my main assembly disk along with a library of other routines that I frequently use. This makes writing routines a simple matter of writing the control section and INCLUDING the appropriate routines at assembly time.

```

DEF JREAD
*
VSBW EQU >2020      X-BASIC VSBW EQUATE.
VSBR EQU >2028      X-BASIC VSBR EQUATE.
VMBR EQU >202C
VMBW EQU >2024
KSCAN EQU >201C     X-BASIC KSCAN EQUATE.
JOYBUF EQU >8376    ADDRESS WHERE Y-INPUT IS STORED BY KSCAN ROUTINE.
ASCII EQU >8375
DEVICE EQU >8374    ADDRESS TO SELECT THE DEVICE THAT KSCAN WILL CHECK.
HFC   BYTE >FC     \
H04   BYTE >04     \ STANDARD HEX JOYSTICK INPUTS.
H12   BYTE >12     -(THIS IS THE FIRE BUTTON.)
NONE  BYTE >00     /
STATUS EQU >037C   ADDRESS OF COPY OF STATUS REGISTER.
*
JREAD
MOV R11,R9
LIMI 2             ENABLE AUTO MOTION OF OTHER SPRITES.
LIMI 0            DISABLE AUTO MOTION OF OTHER SPRITES.
LI R0,>0100       SELECT
MOV R0,@DEVICE    DEVICE TO BE SCANNED.
BLWP @KSCAN       SCAN JOYSTICK #1.

```

```

LI R0,>300          SET LOCATION OF SPRITE #1 Y COORD IN REG 1.
BLWP @VSEB         GET Y COORD FROM VDP RAM.
SRL R1,B           MAKE IT A WORD OPERATION.
CB @NONE,@>8376    CHECK JOYSTICK INPUT FOR ANY VERTICAL VALUES.
JED XCOORD         IF NO GOTO X COORD ROUTINE.
CB @HFC,@>8376     ELSE CHECK FOR DOWNWARD MOVEMENT.
JED DOWN           IF DOWN THEN JUMP TO 'DOWN' ROUTINE.
JMP UFYC          ELSE FALL THROUGH TO 'UP' ROUTINE.

UFYC
DEC R1             DECREMENT THE Y COORD BY TWO.
LI R0,>300        RELOAD Y COORD ADDRESS INTO REGISTER 0.
SLA R1,B          MAKE R1 A BYTE OF AGAIN.
BLWP @VSEBW       REWRITE NEW Y COORD TO VDP RAM.
JMP XCOORD        JUMP TO 'XCOORD' ROUTINE.

DOWN
INC R1            INCREMENT BY TWO THE Y COORD.
LI R0,>300        RELOAD THE Y COORD ADDRESS IN R0.
SLA R1,B          MAKE R1 A BYTE OF AGAIN.
BLWP @VSEBW       REWRITE THE Y COORD TO VDP RAM.
JMP XCOORD        JUMP TO THE 'XCOORD' ROUTINE.

XCOORD
LI R0,>301        LOAD THE VDP ADDRESS OF THE X COORD INTO R0.
BLWP @VSEB         GET X COORD.
SRL R1,B          MAKE IT A WORD OF.
CB @NONE,@>8377    CHECK JOYSTICK INPUT FOR HORIZONTAL VALUES.
JNE XC1           IF THERE IS X-INPUT THEN GOTO XC1
RT                ELSE RETURN TO CALLING ROUTINE.
XC1 CB @HFC,@>8377 CHECK FOR HORIZONTAL VALUES INDICATING LEFT INPUT.
JNE RIGHT        JUMP IF NONE TO 'RIGHT' ROUTINE.
*                ELSE DEFAULT INTO 'LEFT' ROUTINE.
LEFT
DEC R1            DECREMENT X COORD (TO MOVE SPRITE #1 TO LEFT) BY TWO.
LI R0,>301        RELOAD X COORD VDP ADDRESS INTO R0.
SLA R1,B          MAKE IT A BYTE OF AGAIN.
BLWP @VSEBW       REWRITE NEW X COORD TO VDP RAM.
RT                RETURN TO CALLING ROUTINE.

RIGHT
INC R1            INCREMENT X COORD BY TWO (TO MOVE SPRITE #1 TO RIGHT).
LI R0,>301        RELOAD X COORD VDP ADDRESS INTO R0.
SLA R1,B          MAKE IT A BYTE OF AGAIN.
BLWP @VSEBW       REWRITE THE X COORD TO VDP RAM.
RT                RETURN TO CALLING ROUTINE.
    
```

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NEW MAGAZINES IN:  
 TI 99/4A (quarterly/year) \$ 2.95  
 TI PROFESSIONAL COMPUTING (monthly) \$ 3.50

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## The New EXPANSION SYSTEM

The latest news from CorComp Inc. is their brand new EXPANSION SYSTEM for your TI 99/4A computer.

The EXPANSION SYSTEM has provisions for installing 2 slimline disk drives or 1 full height drive and it contains the powerful SYSTEM motherboard. The following items that expand the power and versatility of your 99/4A computer are included on the motherboard.

1. 32K of Expansion RAM Memory which will allow you to run TI Writer, TI LOGO or LOGO II, TI Multiplan, TI Forth and Assembly language programs as well as larger and more powerful Extended Basic programs.
2. A Double Sided - Double Density disk controller. This controller will control up to 4 disk drives and they can be accessed as either DSK or disk (upper or lower case). With 2 slimline Double Sided Double Density disk drives mounted in the box you will have 720K of on line rapid access disk storage. With four drives hooked up you will have 1.4 megabytes of on line storage. The tests we saw indicated that this new disk controller loads programs 2 - 4 times faster than the TI disk controller. The DSR ROM will contain the necessary support for loading "Load and Run" type Assembly language programs without the Editor / Assembler command module. This same ROM will also add CALL POKEV and CALL PEEKV for accessing VDP RAM and they can be used as commands or program statements.
3. An RS232 interface with 2 serial outputs and 1 parallel output. The serial outputs are TI compatible and the parallel is a true Centronics output. This allows you to hook up printers, plotters and modems to your computer.
4. Specially designed power supply that will power 2 slimline disk drives, and the SYSTEM motherboard.
5. The FLEX cable interface for hooking all this power up to your computer. The cable is a small flexible round one (not a fire hose) that plugs into the side of

your computer via a small L type connector. This connector directs the cable towards the back of the computer instead of straight out to the side.

The EXPANSION SYSTEM, which is about half the size of TI's box, has some illuminated graphics and the power switch on the front panel. The graphics return information on the Flex cable interface, 32K RAM, RS232, Disk controller, disk Side 1, disk Side 2, the disk Index mark and the Option slots.

The disk controller will control just about any 5 1/4 inch disk drive from full height single sided - single density to double sided - double density slimlines. There are provisions in the disk controller section of the motherboard to set up the head seeking time (track to track) to match some of the faster (more expensive) disk drives out there. The disk manager program is supplied on disk with the box. This is a completely new program with some very nice enhancements added to it! At the time this article was written there were other possible future options being tested for the Expansion System. These items weren't fully tested yet so I'll let you know about them next month.

The EXPANSION SYSTEM will be available through your local dealer starting at the end of March. PLEASE contact your local dealer for additional information and pricing.

CorComp is also currently working on a stand alone RS232 interface for the 99/4A. This RS232 unit will plug directly into the side of your computer and it will be shaped to match the 99/4A profile. It will have a serial port and a parallel port. This will allow you to hook up a modem, and/or a printer or plotter to your computer. The suggest retail price is unknown at this time. The other item they are currently working on is a Disk Controller card for the TI Peripheral Expansion box. This controller card will have all of the same features as the controller that is on the motherboard in the Expansion System. It will also come with the same Disk Manager program on diskette and it should be available around the same time as the Expansion System. The price is unknown at this time.

## MORE ON PROTECTION

by Mike Walker

I know I have talked about software protection before, and I hate to keep harping on a sore subject, but perhaps if you will read on, you'll see that the subject must be discussed.

There are currently four methods of protecting software, three of them are enacted by law and the fourth is physical protection. The three "legal" methods are, of course, the PATENT, COPYRIGHT, and TRADE SECRET. The patent and copyright laws are Federal laws and the trade secret laws are enacted by each state, and, therefore, vary from state to state. In my next article, I'll discuss these three legal forms of software protection and what they mean to you - the consumer of software.

In this article, I would like to talk about the fourth method of protecting software - the "physical" protection schemes. I have a relatively naive outlook on life - I assume that the majority of the people in the world are honest. Software vendors do not. If you stop and think about it a while, you'll understand why. Just like any other form of enterprise, software vendors must make a profit if they are to stay in business. Unfortunately, the Federal laws are not sufficient to discourage individuals from stealing the vendors product, so they have resorted to all forms of physically securing the software to the diskette. (Unlike other products, such as books, when software is copied, the copy is just as good and functional as the original product.) This process is expensive - an expense that is passed on to you and me - the consumer.

As a producer and consumer of software, I can see both sides. But ask yourself this question the next time you are tempted to make a copy of copyrighted software: "What would my world be like if nobody produced software for my computer?" I recently read an article that estimated that software vendors will lose \$700 million to illegal copying this year. Think of the software that could be produced with that much money. If software vendors continue to lose their shirts, they will find another more profitable line of work, and the production of software for your computer will be up to you!

Now, to get down to the real meat of the problem, lets turn to the physical act of protection. Physically protecting software on a diskette or cassette is a process that requires constant changing. Software thieves being what they are, will eventually break the protection scheme and therefore new methods must be devised. It gets to the point where the vendor spends most of his time and resources on protection schemes to protect what he has already produced instead of developing new and better products for us. What's more, physical protection will only keep the "honest" people honest. The folks that are into software piracy will only be slowed down a little!

The real "bummer" about physical software protection is that it almost always makes the software more difficult to use. For instance, some software diskettes must be placed in certain disk drives if they are to function, others require that you remember a "secret" password, some may even be destructive in that if not used exactly as they are supposed to be will erase the contents of the disk and memory. However, the biggest headache with physical protection schemes is that you and I are not allowed to exercise our given right to protect ourselves from our own "clumsiness." The average consumer will not be able to backup his extremely important and often expensive software in case he happens to spill coffee on his only copy, or his two-year-old son decides to see how far that flat "frisbee" will fly. Some vendors have recognized this problem and have offered to replace the software for a small fee to cover costs if the original diskette is returned (assuming the frisbee can be found!) In spite of this policy, the exchange process takes time, and a period of several weeks could be lost waiting for the restored copy to be returned. If I were to lose my word processor, for instance, I would be "out of business" until it's replaced. That thing has become a very important part of my life as a college professor and as the President of the BUG. Both positions require heavy use of a word processor (it would be like losing your refridgerator for two or three weeks!) Business entities that require and use software on a daily basis would suffer irrecoverable losses and may even be driven out of business altogether.

What it boils down to is this: Software costs are rising. We are the reason. If we want good software for less cost, we must control that often irresistible urge to copy software our friends or neighbors may have "borrowed" from the guy down the street. If we don't want "physical" protection, register our desires by not buying software that is physically protected, and let the vendor know why. When you do buy software, politely refuse to provide copies to others.

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ADD-EASE  
by Kathy Frye

To turn your computer into a simplistic adding machine just key in the little program listed here.

```

100 CALL CLEAR
110 INPUT "PREVIOUS BALANCE?":BALANCE
115 N=N+1
120 INPUT "SUBTRACTION AMOUNT?":SANT(N)
121 IF SANT(N)=0 THEN 150
130 STOTAL=STOTAL+SANT(N)
131 GOTO 115
140 M=M+1
150 INPUT "ADDITION AMOUNT?":AAMT(M)
160 IF AAMT(M)=0 THEN 190
170 ADTOTAL=ADTOTAL+AAMT(M)
180 GOTO 140
190 NBAL=BALANCE-STOTAL+ADTOTAL
200 DISPLAY "NEW BALANCE=";NBAL
210 END
    
```

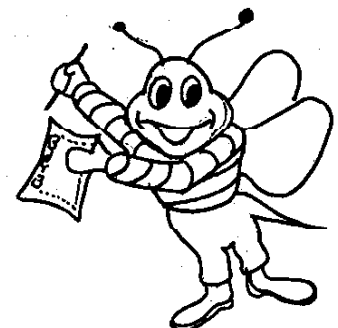


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