



Newsletter

September's Newsletter

The Winnipeg 99/4 User Group is a non-profit organization formed to meet the needs of Manitoba based Texas Instruments users. The content of this publication does not necessarily represent the view of the Winnipeg 99/4 User Group. This newsletter is one form of communication to keep Manitobans up on Texas Instruments Computers and its clones.

Next General Meeting - Date : October 3rd, 1985
Time : 7:00 P.M.
Place: Winnipeg Centennial Library
2nd Floor, Assembly Room

TVCS_BBS_TI_SIG_204-885-7921
Executive_1985:

President and Educational Co-ordinator:	Jim Bainard	334-5987
Treasurer:	Bill Quinn	837-7758
Newsletter Editor:	Mike Swiridenko	772-8565
Contributing Editor:	Paul Degner	586-6889
Inter-Group Representative and Newsletter Publisher:	Dave Wood	895-7067
Public Domain Librarian:	Gordon Richards	668-4804
User Programs and Book Librarian:	Mike Swiridenko	772-8565
Module Librarian:	Peter Gould	889-5505
Systems Co-Ordinator:	Sheldon Itscovich	633-0835

Mailing Address:

WINNIFEG 99/4 USERS GROUP
POB. 1715
WINNIFEG, MANITOBA
CANADA, R3C 2Z6

EDITORIAL COMMENTS:

Well! Welcome back to the fall edition of the newsletter. I hope you all had a pleasant summer. Winter is just around the corner. The time of the year when you have all kinds of time to spend indoors programming on your TI home computer.

This newsletter brings with it a new newsletter editor and a new format. New to this publication are several columns intended to help the novice as well as more experienced TI user. They include a hints and tips column, a programming help column, and a review column. Paul provides his insight into what's new and what's rumoured in the world of the TI in his article 'Quid pro Quo'. There are also the usual feature articles.

This month's features include Paul's article on the floppy disk, and the second part of my article on computer game programs. That's about all for this month's issue. I hope you enjoy reading it as much as I did making it.

If you have a review, user hints, or helpful programming tips, get them to me for the next newsletter. The deadline that I am setting for submissions is one week before the date of the group's meeting. No matter how small your suggestion may be it is quite possible others may benefit from it. Be an active member and participate!

MISCELLANEA:

Miscellaneous news and reminders. Executive elections were held in June. New positions created were the ones of Educational Coordinator (Jim Bainard is to be responsible for getting people to give presentations at the monthly meetings), and Systems Coordinator (previously 'system!'). Jim Bainard was re-elected as the club's president. Doug Howe leaves the position of user written program and book librarian. He served his position well, and will be missed. New members to the executive include myself and Peter Gould (now in charge of the module library).

The club is looking for new members and has decided to notify the public with an ad in the computers section of the weekend newspaper. We are advertized in the Computer Shopper, under the province of Quebec (??). I am looking for new submissions to the user written program library, and suggestions (donations?) for books that could be added to the book library. Sheldon submitted the first original assembly language program to the user written library. I would like to see more of the same (from Sheldon or anyone else). Tec Voc BBS is up again, after being down for the summer. To get back onto TVBS you must re-apply for your user status. Remember to check out the club libraries for new stuff as well as the swap and sell column on the back of this newsletter. That's all for now.

READER RESPONSE:

From: Steve Zabarylo

The article in the June newsletter by Paul Degner was greatly appreciated. The part on replacing the console power supply is a must read for any 4A owner. These new supplies are available from Tandy Stores and J&J electronics at bargain of the century prices. (Excellent for powering any of your TTL projects with modest requirements.) I would, however, like to suggest a simpler method of adding the LED to this new board. The LED from your old board may be installed in the same location on the new board without replacing one of the leads with the 2.2k ohm resistor. The cathode lead goes to the ground trace. The trace from the other hole wanders off to the vicinity of the input line filters and ends at an unused hole. Near that hole can be found the end of another trace that originates at the +5v rail. This trace also ends in an unused hole. And, wouldn't you know it, these holes are just the right distance apart to be joined with a 1/4w 330 ohm resistor. Test your new board before installation by connecting the transformer and turning it on. If all that glows is the LED, you can then install the new board. If the LED does not light, not to worry, you probably just installed it backwards. You've not hurt it, just turn it around before your soldering pencil cools.

Now that's how the board should have come from the factory. The LED, now, tells you that the power switch is on AND there is +5v ready at the output. Warm beverages will no longer cut it while you amuse yourself at the console. 73's y'all. (We all appreciate your feedback, Steve! (Ed.))

REVIEWS:

This column presents reviews of materials that may be of interest to the user. The views expressed are the opinions of the reviewers, exclusively.

HARDWARE:

Purchase a new piece of hardware and want to tell others about it? This section is available for your comments.

SOFTWARE:

The following is from Gord Bradshaw and was submitted by Doug Howe.

We received disk utilities from an outfit called "M+T UTILITYWARE" but I feel that the programs are not worth the money. I have just received a package from MILLER GRAPHICS containing a disk called ADVANCED DIAGNOSTICS. For \$19.95 American you get one heck of an utility package.

Things you can do are:

- 1) Make a BEEP and change screen colors. No big deal in itself.
- 2) Catalog a disk like the Disk Manager does, and tell you where you have sectors and list out fractured files.
- 3) Load and run DIS/VAP 80 text files as if they were typed in from a key-board.
- 4) Perform complete REFRESH and BIT SHIFT memory tests of SCRATCH PAD RAM, VDP RAM, memory expansion RAM, and MINI-MEMORY RAM.
- 5) Number conversion (Decimal, Hex, Binary).
- 6) Read, write, and edit sectors.
- 7) Format disks.
- 8) Read, write, and seek tracks.
- 9) Motor speed checks.
- 10) Head step checks.

Also included is a tutorial on Disk Drive Controllers.

Gord Bradshaw started the original Winnipeg TI users group but later relocated to Calgary. (Ed.)

BOOKS:

The following reviews are of two books that I discovered over the summer months.

This review is of Susan D. Lipscomb and Margaret A. Zuanich's book, 'Basic Fun with Adventure Games'. It was donated to the club's book library by Brian Lesko.

This book shows you what is involved in the planning and design of an adventure game. Locations and objects must be carefully planned around a good plot. Included is the listing of an example adventure. Suggested modifications, also in the book, include adding a title screen, instructions, obstacles, more objects, more words, a point system, and a save game option.

The adventure is interesting in itself, but rather large. It is called CIA and involves a contemporary plot based on the classical 'CIA vs KGB' conflict, which I found interesting. I spent several hours entering the program, resulting in a 77 sector monster. The major changes required breaking up the long location descriptions and modifying the routines that operate on them. Little statement conversion was required to make this Microsoft program work in TI Ex-Basic. If you don't want to type in the program you can get a copy, on a disk of your own, from me.

Except for the length of the program this book presents a fair introduction to adventure games and I'm sure it will wet your appetite for other books about the same topic.

The following review is of 'Compute's Beginner's Guide to Assembly Language on the TI-99/4A' by Peter M. L. Lottrup. I borrowed this book from Rick Lunsden.

Intended for Mini-Memory owners, this book is an excellent guide to assembly language programming for the TI computer. It starts off by showing you how easy it is to display character strings to the screen, create simple delay loops, and clear the screen; then explains registers, a few simple instructions, subroutines, and instruction formats. This is all introduced, to the user, in the first four chapters. Later, there is a section which shows how to make assembly routines useable by Basic programs. The rest of the book covers every aspect of the TI computer. Throughout the book is a continual friendly discussion of how to use the Line-by-Line Assembler, including how to correct errors, and how to add a program name to the REF/DEF table. From key board and joystick control to GROM/ROM utilities, to sound, sprites, and graphics, everything is shown. I could suggest a new title for the book, 'TI Assembly Language Laid Bare'. There is nothing the book does not uncover.

This book, from cover to cover, is packed full of information and is well worth the \$12.95 (U.S.), marked on its cover. I highly recommend it for all owners of the Mini-Memory cartridge. Owners of the E/A module; however,

might receive less value from it.

HELPFUL HINTS AND TIPS!

(FOR THE USERS, BY THE USERS!)

This column features tips brought to my attention from members of this group, other user group's newsletters, and various other sources. **WARNING:** These hints and tips are to be used at your own risk!

PRINTERS:

A problem discovered when trying to use the GRAPHICS mode on my Panasonic printer was solved by suppressing the carriage return and linefeeds to the printer with a '.CR' in the open statement. To get the full benefit of the 132 character per line condensed mode print open your printer as follows- 'OPEN #1:"PIO", VARIABLE 132, OUTPUT'. If you are using the smaller width printer (10-1/2") and don't send the condensed mode printer code the printed lines will wrap onto the following line.

MINI-MEMORY:

If you have the Mini-Memory and the 32k ram expansion, you aren't limited to the 700 odd bytes left after loading the Line-by-Line Assembler for your program. ADRG >A000 will place the start of your assembly language program at the beginning of the computer's high memory. You then have 24k bytes of program space. Things get a bit trickier though when saving the program as you may have to save the contents of the mini-memory (>7000 to >7FFF) as well as the memory space in which your program resides. (The above were submitted by me. Ed.)

EDITOR/ASSEMBLER MODULE:

To print a file with the E/A editor a little faster than using the print option (# 4 on the menu) try saving it (# 3) to your printer. Make sure to add a period to your open statement (e.g. "PIO.").

To run a program called UTIL1 in memory image format from the E/A just hit the enter key at the "PROGRAM NAME" prompt.

EXTENDED BASIC:

To change screen and character color in the programming mode (in Exbasic) enter the following with no line numbers:

```
FOR I=0 TO 9 :: CALL COLOR(I,xx,1) :: NEXT I :: CALL SCREEN(yy) :: ACCEPT AT(1,1):AS
```

xx=foreground color and yy=screen color.

If you have a Basic program that uses up all of the 16K console memory and requires the use of the printer, but turning on the PEB even with a CALL FILES(1) still gives a memory full error, try turning on the PEB after the console is on. This negates use of your disk drive but still allows access to the RS232 card and its attached peripherals.

Entering this line at the beginning of a program gives the user a solid line instead of a series of dashes.

```
CALL CHAR(95,"O0FF")
```

When program encounters a 'FCTN U' it will print a solid line.

To get out of the OLD CSI routine before you start to load hold down Shift E.

TERMINAL-EMULATOR II:

To hear your program read to you first insert your TE-II then go to Basic and load your Basic program, then type 'LIST "SPEECH"'. Note: This will not work with programs that include Extended Basic statements.

MULTI-PLAN:

To print out a large spreadsheet in 132 chars/line go to basic before entering Multiplan and send the proper codes for condensed print then load the program and print it as normal. Note: leave the printer on-line and connected while doing this.

TI-WRITER:

To see what your TI-Writer formatted copy looks like before printing, enter the formatter and at the "PRINT DEVICE NAME" prompt, enter a disk drive number and file name. This will write the formatted file to disk and can be reviewed with the "EDIT" function.

GAME CARTRIDGES:

To enter test mode on some module software, enter #* (shifted- 8, 3, 8) when the title screen is up. This works on Munchman, Alpiner, Hopper, Moonaines, and the Munchmobile cartridges. Others only require a shifted 8 to enter the test mode.

To turn off the speech with STARTREK, enter 2.

HARDWARE PROBLEMS:

Trouble with the internal drive in the PEB can be sometimes traced to a bad voltage regulator in the PEB. Replace the 1 Amp regulator with a 5 Amp model. Sylvannia #EC933

To set disk drive speed when you are having trouble with loading programs try the following: Remove the drive from its enclosure and find the strobe wheel. Make sure it has a 60 Hz. mark on it. Find the speed control pot on the circuit board (usually marked). Illuminate the area with a fluorescent light and attempt to load a program while watching the wheel. The marks should appear to stand still if drive speed is correct. If not adjust the pot until they appear to stand still.

Special thanks to Rick Lunsden for the above submissions, and to Doug Howe for submitting the following tips sent to him by Gord Bradshaw. See the reviews section for a review, by Gord, of MILLER GRAPHICS ADVANCED DIAGNOSTICS package.

JOYSTICKS:

Try adding 6 inches (15.25 cm) of 1/2 inch (1.25 cm) inside diameter NEOPRENE hose to the shaft of your T.I. joysticks.

Poor response from your T.I. joysticks? Place a thin leather washer between the stick and the pressure pad. Be sure your joysticks are disconnected from your computer before working on them.

CASSETTE:**(LAWS OF COMPUTER TAPING)**

- 1) Check the distance between the cassette and the T.V., the longer the better.
- 2) Stick to short tapes. C60 or shorter is preferable.
- 3) Fast forward and rewind occasionally. Tapes get stuck if you only play the same piece again and again.
- 4) Check the cassette cable in the back of the console. Supporting the cable end doesn't hurt.
- 5) If you run on batteries---DON'T. Always run on household current.
- 6) Recorders with manual record settings are better than automatic level recorders.
- 7) Ensure the ALPHA-LOCK is down. Recorders don't know the difference.
- 8) CS1 will read and write while CS2 will only write.
- 9) Keep your record heads CLEAN.

PARSEC GAME:

At the start of the game, when you are instructed to 'PRESS FIRE TO BEGIN' - don't. Instead CRASH YOUR SHIP INTO THE GROUND. This also causes the game to start. The SWOOPERS then come down from the top of the screen as usual. When you have destroyed these; however, the URBITES do not always follow and sometimes several waves of aliens are missed. The game can even jump to the BYNITES or the ASTEROID BELT. Very rarely KILLER SATELLITES may appear after the SWOOPERS. Destroying these causes the game to jump to level two or even level three and SWOOPERS will again appear from the top of the screen. The game then returns to normal.

This seems to work best especially when the module has been in use for any length of time, and also is the ship has been crashed at several particular points on the ground. If nothing happens the first time, use REDO or BACK to return to the start of the game and try again.

Here are some tips on achieving high scores on Parsec.

- 1) Don't panic!
- 2) To make killing DRONITES very easy, switch to LIFT two and go to the bottom of the screen. When the DRONITE reaches you, move upwards and fire.
- 3) Fire in burst of about four shots. Much more than this causes your ship to explode at higher levels.

If you want to cheat, at Parsec, here are a couple of things that you can do:

- A) To fire an unlimited number of shots press Q and the Fire Button on Joystick two at the same time. This also has the effect of filling the screen with leftover laser fire.
- B) To move to the far left of the screen, first move to the right a little way, then move to the left and push the joystick upwards. The ship then continues moving backwards. Be careful or you will appear on the far right of the screen.

The Winnipeg 99/4 Users Group

Quidproquo

By Paul Degner

It's good to be back writing for the newsletter again. This time around I hope to bring out the human side of computing rather than the inhumane ~~aspect~~ ^{of} straight information because I think it provides enjoyable reading. We must then start!

The last time I spoke was about my attempt to modernize the 4A. Well it was somewhat of a success for awhile but a strange feeling set in when the 4A was smoking. I jumped for the power switch to save my little darling but alas it was too late. She croaked. Her demise was caused by my own modifications to her internals. It seems the reset switch was connected to the wrong contacts. It was touching the +5 VDC and the GND which really did reset the computer alright. I eagerly took her apart to see if I could salvage anything. I found out that an IC had cooked badly so I went off to the local Texas Instruments supplier of semiconductor to replace that chip. Once replaced she was still smoking. So instead of replacing every chip on the board which could in time cost more the computer itself, I decided to take the advice of one of my friends, Rick Lumsden, and send it to the exchange centre in Richmond Hill, Ontario.

To send it there I would need something to cover the board because the exchange centres will not take in modified equipment. So Rick graciously offered the use of his spare console case to hold Kira's internals. I phoned up Geo to make sure they still exchange consoles and I found out they did but they charge for that service. Saw about \$58.85 CDN which includes shipping and handling. So I packed her off to Geo with a cheque and waited a whole month to get her back. In return for the wait I received a new mother board just waiting to be modified.

The modifications were taken a little more seriously this time. I would only make four operations on the mother board (the Hold and Load SPST switches) while the keyboard port was now connected to the keyboard and the Reset switch moved to the BRDM port. I found out that installing a close momentary switch on pin number one of the BRDM port will do the job but you must cut the copper foil on the connector to facilitate the switch.

One word of caution on those power supply boards featured in Radio Shack and various electronic stores in Winnipeg that these boards are found to be defective in certain cases such as mine. I have had two boards fail on me and one of them could have been a contributing factor to my 4A's demise. My first one didn't supply any power to the 4A and second was supplying a very wavy line of voltage to the 4A. I would definitely meter the voltages before attaching the board to the 4A.

Briefs:

- There have been seven thousand TI-99/4As sold in the Nations Capital Region. I wonder how many in the grain belt?
- Texcomp has a offer which nobody can refuse. If you order \$99 US or more of specified software you can get either a beige 4A for \$47.95 US or silver 4A for \$67.95. It might be worth looking into for a backup computer!
- The TI-99/401 is a revision of the 4A where it was Quality Improved by the integration of ICs and quicker installation of them. Electrically it's sound but case out in the beige consoles from August 83 til March 84 where they have an attitude not to talk to non-TI peripherals.
- Texcomp again has good offers on various things. \$36.95 US for the EDASM cartridge with Widget. \$29.95 US for the Widget and the hidden powers tool. \$34.95 for the module Paint n'Print. \$54.95 for the module Data Base Manager.
- A warm welcome to the new newsletter editor of the Winnipeg 99/4 Users Group. Michael Swiridenko takes over the helm and I wish him the very best!
- Databiotics has a few new pieces of software. \$39.95 US for Bitmac, a Macpaint emulator. \$19.95 US for Pilot, educational language. \$299.95 US for Superdisk, a ram disk (256K) expandable to 512K. \$99.95 US for Kenoir, Forth graphics language. \$19.95 US for 4A/Talk, a terminal emulator featuring TE2 and Xmodem protocols. You can reach them at Box 1194, Palos Verdes, CA 92274.
- Paul Charlton has programmed up some very interesting software in the area of telecommunications that some of you should look at. Rick Lumsden, our intrepid sleuth of telecommunications, has received a update version of Paul's Faster program. This version features a wide range of user options such as default file setup, Xmodem protocol, TE II protocol, ASCII protocol, autospooling, screen dump, timer, adf3a support, logging of files, and much more. Xmodem protocol brings CRC and Checksum transfers to the 4A while being able to transfer any TI file to a BBS and have another person download it with out any conversion to run it. This is very handy if you intend to run a TI BBS on a different computer. A Kermit protocol is in the works so it may be wise to send into Paul for updates. He can be reached at 1110 Pinehurst Ct, Charlottesville, Virginia, 22901. Programs can be purchased by sending \$10 check or money order to the address above. Persons wanting source code must have at least 720 sectors per disk (tell Paul what format) or send a extra disk. The charges are \$10 for program, \$3.50 for Paul to provide disk and mailer, and \$3.50 for updates (just send Paul a letter saying that you want a update.)
- There is another mail list program on the market. It's written in Forth and has the following features: 40 col, full screen editing, max 710 records per SSSD disk, sorts, and goes for the price of \$9.95 US. It's available from Ramsoft Enterprises, 1501 E. Chapman Ave Suite 336, Fullerton CA 92631.
- Soon there'll be a digitizer which will connect to your printer and strobe any picture fed into it and throw the ASCII representation of it into a DIS/VAF 80 file such as in the Printart demos.
- Two new Tunnels of Doom adventures are out. One freeware and the other public domain. We have one of them.
- A new public domain disk manager is out called Disk Manager 1000 and authored by Bruce Caron of the Ottawa Users Group. We received this program graciously from Terry Atkinson, Sysop of Dartmouth TIBBS. Upon first glance I thought it would be something like Disk Manager III but boy was I wrong! It's definitely amazing in its performance and style. Though I would like to see a track by track disk copier included within the program such as in TurboCopy.

- The 99/128 was a no show at the June CES according to people in attendance. Terry Atkinson, Sysop of the Dartmouth TIBBS, got inside information from sources that a few days later it was apparently there for show to only potential backers. Although a display on the third day did open from Myarc, a new extended basic cartridge called Extended Basic II was only shown. Fully compatible with regular Extended Basic makes it very interesting with these expanded features: existing programs execute up to 3 times faster; 40 character text mode; support of integer variables; hi-res graphics support; new commands to DRAW, FILL, RECT, CIRCLE, and many more for graphics; includes 128K Operating System support for new 32/128K memory expansion; windowing; improved error checking of 128K; and goes for \$84.95 US at Specialist Inc.

- Byte Data was being rumored to be a fly by night company because of their silence since February but alas they are still around. Rick Lusden just receive their latest newsletter which stated they have been busy with answering all the letters dealing with the new 99/128 computer. They say 98% of the letters received were in favour of the new computer so we will definitely see this computer in the near future.

- We finally are rolling on subscriptions now. We subscribe to Nine-T-Nine, TINS, Ottawa 99, Niagra, STICC, Micropendium, Mini-Rag, and HCM. The newest one comes from Edaonton called 99'er Online. Looks promising as Tom Hall and Michal Jagermann, assembly men, have alot of input in it.

- The upgrade kit for the 9900 Micro Expansion Unit is available for \$259.95 US which includes the 32K and disk controller and also the extended factory installation warranty available from Unisource.

- A few new TI 333s are out and running under the name Zvolog, written by Bryan A. Willcutt of Honolulu, Hawaii. His own board features 12 meg of online storage, TELL support, and a large message base. Zvolog I can be reached at 608-536-0998 while two other ones have be set up in North America at 714-669-9242 and 305-834-2530.

- A new card out of Corcomp looks promising to those looking for a way to get time on your system as well as 64K printer buffer and a way to stow your speech card. Triple Tech will do the job. This card will plug into the PEB and give you access to a time clock, 64K printer buffer and speech synthesizer connection. This is going for \$109 at Texcomp.

- Morning Star Software has announced a new 128K RAM expansion board which allows bank-switching up to 160K of memory or more. The board provides 16 banks of 8K or eight banks of 16K plus 32K for 40K/48K expansion RAM online (64K total including VDP RAM), 166/288 K total expansion memory. Morning Star officials say the board must be used with 32K of RAM, either TI or Foundation 128K memory (which still functions as a disk emulator). It has two sockets for 8K/16K of EPROM and six modes of operation. The board contains 128K of RAM plus sockets for two 8K ROM chips. It switches in either 8K or 16K in addition to the 32K card. Since it makes 40K or 48K available in the PEB at all times, it allows running larger programs than was formerly possible, according to the manufacturer. The facility for "bank switching" 16K at a time while 32K remain "resident" affords true program overlay techniques in programs up to 160K long. Price is \$199 US.

Those people having trouble getting the Channel 99 Users Group Draw program to dump a screen to a Epson compatible printer may want to know there is a solution. You must set your printer by control codes to eighty columns. On the MY-100, I made up this little program which will reset the printer to clear out any control codes and set it to eighty columns.

```
100 OPEN #1:"P10" :: PRINT #1:CHR$(27):CHR$(64):CHR$(27):CHR$(81):CHR$(80) :: CLOSE #1 :: END
```

The CSI Design Group has a new program out called AAEDIT (Advanced Assembly language EDITor). It features: 40x24 display; uses standard DIS/VAR 80 files; uses the same function keys as TI's editor; command mode; runs from the EDASM load and run option; performs syntax checking on your statements as you enter them. This means that you may never have to re-edit and re-assemble a file because of an avoidable syntax or addressing error. As long as you are scrolling or paging through text or entering correct statements you never know it's there. If you mistype a mnemonic or directive or use an incorrect addressing mode you receive a pleasant beep and the cursor is placed on top of the offending character awaiting your correction; and it goes for the price of \$19.95 US.

The Chicago TI Users Group announces that it will hold its third annual TI-99/4A Computer Faire Nov. 2. Last year this Faire drew 21 vendors and more than 1,500 TI users. For vendor applications or further information, contact the group via their bulletin board at (312)966-2342 or write Chicago TI-99/4A Users Group, P.O. Box 578341, Chicago, IL 60657.

Announcement by TI has made it known that a revamped CC-40 may hit the consumer markets before christmas. In a effort to get back into the home computer market a improved CC-40 machine is being produced. It sounds we may see a new line of home computer products coming out so I think they are taking another look at the 99/2, 99/65, and the 99/8.

Hot Hot Tips:

- Star Trek has been cracked by several Edaontonians. A new procedure has been found to make those cartridge listings runnable. They are working on a few new modules such as Multiplan. Apparently the information is listed in SFILES on the Source.

- Apparently there is a authoring package for Plato making its rounds along the trading posts. It is said to be able program up those courseware packages as well as edit the existing line.

- Several manufacturers of TI software have gone the route of the bit map protection scheme. Such products are Floppy Copy, Draw N'Plot, Editor Assembler on disk, Bugout, and about all of the Quality Soft line. There is really no challenge in the schemes as most of them just look for some particular value in the bitmap and if it is not there the program will quit.

- Our intrepid Sheldon has been fooling around with his computer again. He has built Sugar Cart, the 8K RAM module, and it seems to work fine as long as it goes undisturb because a sudden jolt may dislodge the contact from the battery backup and then you lose your contents in the 8K. He'll be working on a custom designed circuit board for the module port so you may not have to destroy a existing module. Also on the horizon is a 16K RAM module, an eight slot widget which is software selectable, and a module eprom burner housed off of the 6800 port.

- Those wishing to alter screen and text colors may want to know that some programs can be colorized by the use of a disk fixer. You can either use Disk Fixer 2.0 or DiskAid with the use of their SEARCH string command where you are looking for the following "07xx" where 07 refers to VDP register 7 where the color of the screen and text is stored where xx is the original color scheme of the program. The first x refers to the text color and the latter x refers to screen color. Say a program setup with white on dark blue would look like the following: "07F4" and could be easily be changed to have dark blue on white by changing it to "074F".

Well that brings it to a close. I hope you enjoy this new format and stay tuned for more new information in the next newsletter. Bye for now!

SUBJECT: WHAT MAKES OR BREAKS A COMPUTER GAME
AUTHOR: M. SWIRIDENKO

This is part two of my two part article on game software. In the first part (see June's newsletter) I discussed my simple observations about the types of games that are played on computers, and my novice approach to a classification of those games. This month I present my opinion about what makes some games good and other games better. Hence, the name of this article...

Before you can decide whether a game is good or bad you have to look at what the game tries to do. Then ask yourself what would improve the actions of the particular game. For some it will be the addition of graphics, music, and color, others may be lacking in joystick control, action, speed, or additional difficulty levels. Each of the game categories that I discussed in the last newsletter differ in the qualities that distinguish poor from good game software. I will discuss the distinguishing features, of each category, one at a time.

BOARD AND PUZZLE GAMES

This category of games are relatively tame compared to the more action oriented arcade games. To be good a board (or puzzle) game must follow the rules of the original game as best as possible. The representation of the game, by the computer, must be accurate enough so that the player has little difficulty following play. By representation I mean the display of the board, pieces, and the moves involved in the normal play of the game. Input of only allowable moves should be accepted. Input of moves should not hinder play of the game and at best will not be noticeable to the player(s).

Representation, accurate input of moves, and consistency with game rules are important. These qualities distinguish good computer board type games from bad ones.

ADVENTURE GAMES

In adventure games a good theme is important and may determine how much time you are willing to spend playing the game. A good theme is relatively useless if it isn't accompanied by good descriptions and friendly play action. Play action involved the acceptance of moves, and how the results of those moves are presented to the user. A poor display and bad input routines will be annoying, and hamper the flow of the game. A good theme will usually allow the player to explore a large number of locations and objects without too much restriction on his/her actions. The locations and objects involved will have purpose, whether it be for color or a specific intent. Poor games are randomly put together and have little continuity with respect to a theme.

Communication of a theme is important in all adventure games. How good the theme is and how well the program conveys this theme determines how good the program is.

SIMULATION GAMES

A good simulation can be judged by how accurately it depicts the intended real life actions. Ones that receive the most mileage from an attempt to create, at least a part of, the excitement of participating in the real thing. Sounds, sights, or even descriptive feedback can all add to the 'feeling of realness'. Inputs may be done at the start of the simulation or at specified intervals. Predictable inputs should result in predictable outcomes while unusual inputs may produce some unpredictable results. Trying a variety of inputs can sometimes result in unforeseen similarities to the situation modelled.

Overall accuracy of the simulated process with both predictable inputs and unpredictable ones can lead to enjoyable discoveries that one may have never thought possible before. Poor simulations relate poorly to the situation simulated and can leave you feeling that your time could have been better wasted elsewhere.

SKILL AND ACTION GAMES

These types of games depend heavily upon excitement. The game's performance usually depends greatly upon its response to keyboard and/or joystick inputs. Good graphics, sound, and movement all contribute to the performance of a good action type game. Theme may have only a marginal role in some games but contribute much to the value of the better games. Speed and accuracy of play distinguish the good game from the bad. Poor response will result in poor play. The games that are really challenging increase the difficulty of play with the number of challenges that you overcome. Difficulty can be increased by increasing attackers, obstacles, speed of the attackers, or by imposing limits on the time you have, the number of additional men you will get, the amount of missiles and/or energy you have, or any combination of these. Survival will usually depend upon quick reactions and the hasty planning of safe escape routes.

Action type games depend heavily upon motion, sound, graphics, and the accurate and speedy response to keyboard and/or joystick input. Good games will perform well and will increase in difficulty with the skill of the player.

Well that sums up what good games are all about. In general, a computer game should be relatively good in appearance, easy to play, should perform well, and most of all stimulate the player's imagination and gaming interests. Happy gaming, all!

The Winnipeg 99/4 Users Group

The Flips and the Flops of a Floppy

By Paul Degner

Graduating to a disk system can either be hazardous or rewarding experience for a individual all depending on his knowledge of this device. Hazard lies in his ignorance on the use of it while reward works reversely. Ignorance can lead to destruction of your newly acquired device so this article hopes to show you how to preserve your investment through a piece of material that could easily take your disk system out of commission if not used correctly. That material is namely the 5 1/4-inch floppy disk or floppy for short.

The floppy is a flat square upon its removal from its envelope but that isn't its true shape. The square shape is for the protective vinyl jacket that protects it from dust, grime, and fingerprints. Inside the is the disk itself--a thin, round, saucer-like object, slightly over 5 inches in diameter, made of Mylar plastic and coated on both sides with a thin layer of metallic oxide. When the floppy is front and center you see a square notch, write-protect notch, in the upper lefthand side. At the bottom of the floppy you'll find two small alignment notches. The jacket itself has three holes: a large spindle hole in the centre, a small indexhole window just to the right of the centre, and an oblong read/write access window about an inch long near the bottom. This window exposes part of the disk on which data is recorded.

The disk itself should be examined as that is where all the action takes place. The centre hole is strengthened with a hub protection ring (almost all disks have one now, although it may be missing from disks made a few years ago.) The disk itself can be rotated in its protective sleeve til you see a small index hole in the the index-hole window. The index hole enables the computer to keep track of the disk's position as it rotates.

The oblong access window is about the most important place on a floppy because this is where the data goes through to get on to the disk. The data is spread along the one inch wide strip of magnetic oxide ring contained on the disk's surface so it is important to protect this part from dust and prying fingers. The back side of a disk contains a similar magnetic ring, which can be used to store data as well.

A question might be how data is stored along that magnetic ring? Well we can answer that by using that last sentence as an example. The sentence is made up of 63 characters, including spaces and the question mark at the end. Each character is represented by a number according to the ASCII code (American National Standard Code for Information Interchange.) Each of the ASCII code numbers in turn stored as an 8-bit binary number in the computer's memory.

The first word in the sentence is 'A' The ASCII code for the uppercase letter 'A' is 65, which is stored in the computer as the binary number 01000001 and the blank space at the end of the word is 32, stored as binary 00100000. In this way the computer translates each word of our sentence into a string of 504 individual bits of information (63 characters, or bytes, times 8 bits of binary information for each byte.) "A question might be how data is stored along that magnetic ring?" is then stored on the disk as a series of 504 tiny magnetic fields.

A magnetic field has a polarity, or direction, from right to left or from left to right. One of these directions represents a 1, the opposite, a 0. Creating magnetic fields on a disk is the job of the read/write head, the movable part of the disk drive. When you tell the computer to store information on the disk, the head moves forward to a position determined by the disk operating system (DOS), which is simply the software that controls the storage of data on disks. As the disk rotates (at a rate of 5 revolutions per second), the head creates a sequence of 504 individual magnetic fields, each corresponding to either a 1 or a 0 as it stores our leading question.

It sounds like a tedious process, but a standard single-density disk-drive head sends an electronic impulse, or data pulse, creating a new magnetic field, every 8 microseconds. (125,000 pulses per second.) Thus all 504 magnetic fields needed to store the question "A question might be how data is stored along that magnetic ring?" is stored within 4032 microseconds, a little more than 4-thousandths of a second. Because a disk revolution takes one-fifth (200-thousandths) of a second, more than 40 sentences like our example could be stored during a single disk rotation.

Actually, the amount of data stored on a given disk depends on how that disk is formatted by the DOS into tracks and sectors. Data is stored along a series of between 35 and 80 concentric tracks that are divided into 9 or more sectors.

The density of information storage, or the number of bits that can be stored along any of track on the disk's surface, is determined by the data pulse rate of the disk-drive head. Single-density heads send or receive one pulse of data every 8 microseconds. Double-density heads send or receive data every 4 microseconds. A single-density disk drive must be used with a single-density disk, but the pulse rate of a double-density drive can be slowed down so that it can work with either single- or double-density disks.

Another factor affecting the amount of storage on a disk is track density, the number of tracks per inch. The least sophisticated disks store data on up to 40 concentric circular tracks. Forty-eight tracks per inch are squeezed onto the magnetic part of the disk surface. More recent technology can squeeze 96 tracks per inch onto the same surface, or up to 60 tracks per disk. This increased track density requires a more sensitive head and finer control over the head's movement. Disks that have both double-density and 96 tracks per inch are called quad-density disk because they store four times as much information as standard single-density disks with 48 tracks per inch.

In practice, single- and double-density disks aren't very different. Disks certified for double-density usually have a higher-quality magnetic-oxide surface. Because they cost more than single-density disks, you probably won't want to buy them for single-density applications, but they can be used for both. On the other hand, disks certified for single density may work fine with double-density disk drives, but you'll run the risk of losing some data.

Disks have other physical differences. They are divided into sectors in one of two ways. A hard-sector disk has prepunched index holes that divide into a fixed number of sectors, 10 or 16. A soft-sectored disk only has one index hole (used when the disk is originally formatted) and is formatted into sectors by the disk operating system software. Moreover, a soft-sectored disk can be formatted for use with many different operating systems. The flexibility of soft-sectored disks has made them the type most people prefer. On the other hand, the process of formatting information uses up some of the storage space on a soft-sectored disk, so a soft-sectored disk generally stores less data than a hard-sectored disk.

Double-sided disks and their corresponding disk drives take advantage of the fact that both sides of a floppy disk are coated with a magnetic-oxide layer. By having two heads--one on each side of the disk--a disk drive can read or store twice as much information on a single disk. Actually, a double-sided disk can also be used with a single-head disk drive if you flip the disk over and reinsert it.

Single-sided disks can be used on both sides for some purposes. All you have to do is cut a write-protect notch in the opposite side of the disk jacket and carefully punch a set of index holes opposite the original index holes in the jacket.

You may be able to purchase a "flippy kit" from a dealer or by mail order to help you accomplish this or you could just go out and buy a three dollar paper punch to do the job and please protect the mylar from any scratches that the punch might make. It is best to use a piece of paper in between the punch and the mylar for this purpose. Be warned, though! It's not necessarily a good idea to use both sides of such a disk too frequently. It may not even save you any money in the long run. If you store data on both sides of a disk and use it twice as often, the disk may just wear out twice as fast. Furthermore, a flipped disk rotates in both directions. Dust and grime that are normally retained in the jacket can be released by bidirectional spinning, further shortening the life of your disk. A good rule of thumb is to use both sides of a disk that's primarily for archival or back-up purposes and to use single-sided disks for everyday purposes.

Approximately 230 million floppy disks (both 5 1/4-inch and 8-inch) were sold in 1984 and an estimated 500 million will be sold annually by 1990. Given these astronomical figures, you'd expect the quality of disks to vary widely. But most disks sold can be expected to meet or exceed established performance levels, thanks to industry standards set by the American National Standards Institute (ANSI).

Requirements for disk certification fall into four categories: their ability to withstand environmental conditions, their physical quality, abrasivity, and signal performance. In the first place, a disk should hold up under temperatures from 50 to 125 degrees Fahrenheit, and relative humidities from 8 to 60 percent without warping. For disks being transported, the tolerances are even greater: -40 to 125 degrees Fahrenheit and 8 to 90 percent humidity.

Testing physical requirements is a nit-picker's holiday. Every dimension of the disk, including distance between tracks--indiscernible to the naked eye--is measured to a thousandth of a millimeter. Other important physical tests include light transmittance, starting and running torque, and expansion due to heat and humidity. An overly abrasive disk causes excessive wear of the disk-drive head. Disk abrasivity measured by recording signal amplitudes taken before and after a test run.

Ultimately a disk's worth is measured by its signal performance. A disk can't be certified by ANSI if it's deficient in signal quality. One type of error is the dropout, or missing bit, caused by a "hole" in the disk's magnetic coating. Another type of error is the dropin, or extra bit. A certified disk is error-free.

How long should you expect a disk to last? The minimum warranty for a certified disk is one year. Some disks carry warranties extending beyond five years and lifetime warranties are not uncommon, but you probably don't need a disk with a lifetime warranty. If you read the fine print you'll see that warranties are honored only if a product defect is involved. Because most disks die from "natural" causes--coffee showers, dust storms, heat stroke, fallen ashes, and normal wear--a failed disk can rarely be replaced, even if it's covered by a warranty.

Manufacturers like to describe the quality of their disks in terms of survival tests: "Brand X survives N million passes without disk-related errors." Maxwell, a respected manufacturer, boasts 10 million passes on its floppy disks. Verbatim's Optima disks are rated at an incredible 70 million passes.

Wabash disks are rated at a "paltry" 3 million passes. But as Alan Whitebread, Marketing Manager for Wabash Diskettes, points out in a computer magazine interview, "A user will not live long enough to use 3 million passes on a 5 1/4-inch disk under normal-use conditions, even if those conditions apply 24 hours a day."

Think about it. A 5 1/4-inch disk rotates at 300 rpm, or 18,000 passes per hour. The disk completes 3 million passes in 167 hours. Granted, 167 hours doesn't sound like a very long time. But consider that the average disk drive isn't spinning constantly. Once disk memory has been accessed, most drives stop rotating. As a result, 167 hours of disk use may stretch over months or even years. And if you're like me, more than three quarters of your disks are probably sitting in your disk case or in my case, a shoe box.

For most of us, any ANSI-certified disk will do. Shop around for the best buy. The list prices for a box of ten 5 1/4-inch disks usually range from \$14 to \$50. I wouldn't touch bonus brand disks (\$16) at all because several friends of mine are having a lot of trouble with them. A good brand would be generic brand (\$20) available at Computer Warehouse. A simple test can tell you if that is the kind of disk you want by formatting it and listen to see if it sounds like coarse sandpaper then it probably is! You don't want it because I know from experience!

Now that you've chosen your disk, how do you do feed and care for it? Mainly by heeding the following:

- *Don't touch the exposed disk surface. When you're not using the disk, keep it in its protective sleeve.
- *Don't bend the disk.
- *Don't expose it to magnetic fields. Keep it away from electric appliances, telephones, and metal objects.
- *Don't write on a disk (you'll scratch the magnetic coating.) If you must write on the jacket, use a felt-tipped pen.
- *Don't turn the system power on and off without removing the disk from the drive. Transient voltage can make your disk unreadable. Remove your disk before you touch the power switch.
- *Don't stack disks more than 10 high or place heavy objects on disks. Store disks in a vertical position to avoid warping.
- *Don't expose a disk to extremes in temperature. It can cause warping.

In addition to avoid these seven deadly sins, there are a few preventive measures you can take to keep your disks free from dust and grime. Most importantly, perhaps, is to provide adequate, well-organized storage. It's also a good idea to clean the head every so often to remove the gradual buildup of magnetic-oxide deposits that can shorten the life of both the head and the disk. Disk-head cleaning kits should not be used too frequently, though, because the cleaner that removes the oxide buildup can also scratch the read/write head.

It's only appropriate to end this article with a warning: Floppy disk may be hazardous to your health. And I don't mean that facetiously. Safeguard your mental health by making backup copies.

SUBJECT: Critically Evaluating Software

AUTHOR: M. SWIRIDENKO

When evaluating computer software, no matter if the software is used for business, pleasure, or intellectual purposes, there are many things that distinguish good software from bad software from excellent software. Evaluating software content can become as complicated as the number of uses that the computer can be put to, but I will leave the discussion of that aspect of software evaluation till a future newsletter. Right now I will discuss things to look for, in software, that are valid no matter what the use of the particular software may be.

PACKAGING:

Attractive packaging, of software products, can stimulate and create anticipation in the user. Many times the user is let down after he sees the final product in action. For a product to be good, the overall appearance and attractiveness, to the user, must be followed up from the packaging, to the product's performance, right to the time the user puts it away on his shelf. Not only should the package be attractive, the program it contains should come with instructions that are easy to follow. Poor instructions often keep a user from getting the full benefit of a piece of software. Not only are clear instructions important, the software itself should be clear in all of its prompts and directions. A program is of little use if it doesn't tell you what information you are required to give it or what the program needs you to do in specific situations. The more you know about using the program the better off you will be.

Appearance also has a lot to do with how at ease you feel about using the software. If the software puts information at random places on your television screen (or monitor) it soon becomes hard to follow the program's intended use. If a printer is used then the output to the printer must be neat and well formatted. Nobody wants to look at printed output that is hard to follow or confusing. If the software is a game program then a good theme becomes important and helps make the game more meaningful. In addition the game's graphics should relate to the theme and be pleasant to look at. A good game also offers a playing screen uncluttered by useless information. Useless or randomly displayed information is not a desirable feature in any user quality software. Not only does it detract from the appearance of the product it tends to confuse the user about the intended purpose of the software.

Finally, for a good program to get top marks on appearance, it must terminate easily and pleasantly. Programs that leave a screen full of garbage characters are just as unpleasant and ones that prolong their termination will a 21 gun salute or similar long goodbye. Simple graphics and/or tunes, that are kept brief, are usually more pleasant after a long session with a program.

EASE OF USE:

To be of any value to you software must be easy to use. This particular quality of any software is called its 'user-friendliness'. The term 'user-friendliness' usually applies to when the software is in use and refers to how amicable or friendly it is towards its user. Remember the drink machine that takes your quarters but gives you nothing in return. Kick as you may you'll still get nothing out of the dumb thing! That drink machine can be said to be very 'user-un-friendly'. To be user-friendly software must tell you everything that it expects from you, anticipate possible conflicts (i.e.-no disk in the drive when it expects one.), and take nothing for granted about the person who will use it.

Easy to use means that typing in a wrong response, to an input prompt, will not crash the program. Not only is that annoying but it is also a waste of time. Other things that make a program easy to use are instructions that are brief yet to the point, and directions that are easy to follow. Also, minimal effort to run, use and terminate a program session is desirable. You shouldn't be made to do things that are unnecessary.

If peripheral devices are used they should be incorporated into the program so that a minimal of complications are involved with their use. Output of a good program should be in a format that is meaningful and pleasing to look at. And, finally terminating the program should not involve tricky procedures that require several disk swaps or/and an acrobaticist contortion of key strokes. You should be able to end the program without wondering later if there was something that you should have done but didn't.

PERFORMANCE:

Performance of a program has to do with how well it does what it is supposed to do. Performance is measured by the amount of time that a program takes to do a job as well as by how well the particular job is done. Nobody likes using a piece of software that is slow or does a job poorly. A good piece of software does what its supposed to do, quickly and accurately. A poor piece of software is slow and may have undesirable side-effects when it is used. The side-effects of a poor program are sometimes unpredictable and are the results of programming bugs that have been missed or haven't been taken out of the program. In general a poorly written and debugged program will perform poorly.

EXTRA FEATURES:

Software features in a program offer various options or choices. In games programs this usually means a choice of difficulty level or the number of player. In other software it may mean a choice of where output is to go or of some usefull operations that the user may want done to his data. An example of extra operations in a program is one that allows the user to select exactly how a file is to be sorted, stored, or printed.

Hardware features in a program allow for the use of various peripheral devices. This is a plus when the peripherals are available; however, if the main part of the software depends upon some obscure peripheral (for instance 128K card) the usability of the program will be greatly restricted. Features that provide options for various printer makes (Epson & non-epson standards), or options that provide for non-standard disk formats, such as the Myarc's (??) 8 sector format, are often of benefit to users with non-standard as well as those with standard systems. Options for non-standard peripherals often enhance the usability of a program.

To sum it all up! Good software follows through on appearance, ease of use, and performance from start to finish.

PROGRAMMING HELP FILE:

The purpose of this column is to present, to the user, techniques that will be useful in the writing of programs for the TI-99/4A home computer. As not all readers will have the same programming skills I will present the material at a fundamental level but in a way that tries to be stimulating to the more experienced. Not everyone has knowledge about assembly language and I hope that what is presented here will get some of those people started with it. I hope that there is something, in what follows, for everyone. To the Forth users I will show how to input and print to/from the screen. For those that missed last month's Forth article, I discussed initializing disks and how to use the Forth screen editor.

BASIC/EX-BASIC:

In Extended Basic, to recall the last line entered, press 'REDO'. This displays the contents of the COMMAND MODE LINE BUFFER. Once you recall the buffer contents you can edit and re-enter the line. This is useful when you've made a mistake and don't want to retype the last line you entered. It is also useful because you can change the last line you were on in edit mode. The entire line can be changed, including the line number. Just leave the editor at the line that you want to change, hit 'REDO', and voila. You are now free edit the line or to COPY the line to another location by editing the line number. Try it!

You can also edit your program using the arrow keys! Type the number (don't press the return key) of the line you want to work on, then press the down arrow key (FCIM 'I'). The line will appear with the cursor positioned at the start of the program statement, and you can edit the line in the usual way. Press the down arrow again and you will view the next line, the up arrow displays the previous line. This works only in Extended Basic.

Here are a few language translations that will help to convert those Microsoft Basic programs to TI Basic/Ex-Basic.

Microsoft Basic	TI Basic Conversion
RIGHT\$(A\$,H)	- SEG\$(A\$, (LEN(A\$)-RT+1,H))
LEFT\$(A\$,H)	- SEG\$(A\$,1,H)
MID\$(A\$,A,H)	- SEG\$(A\$,A,H)
INSTR(A\$,B\$)	- POS(A\$,B\$,1)

For 'INKEY\$' use the following EX-Basic one liner:
100 CALL KEY(O,K,S) :: IF S<1 THEN 100 ELSE INKEY%=CHR\$(K)

or the following Basic lines:

```
100 CALL KEY(O,K,S)
110 IF S<1 THEN 100
120 INKEY%=CHR$(K)
```

There are other differences between the two Basics. Multiple statements in Microsoft use only one colon while TI EX-Basic uses two (':' vs '::'). Microsoft uses a semi-colon with 'INPUT ;' while TI uses a colon, 'INPUT :'. The string concatenation symbol in Microsoft is '+', in TI it is '&'. So, concatenation in Microsoft Basic looks like this:

Z\$ = "X" + "Y" OR C\$ = A\$ + B\$

The TI Basic translation would look like this:

Z\$ = "X" & "Y" AND C\$ = A\$ & B\$

Peeks and Pokes are not so easily converted as they depend on the particular machine they are used on. The above conversions should let you use some programs that you couldn't before.

To avoid having to check for lower case characters in CALL KEY commands selecting keyboard '3' will do the trick. This automatically treats lower case input as uppercase values. (from a TINS newsletter).

ASSEMBLY:

The following program was inspired by COMPUTES! 'Beginner's Guide to Assembly Language on the TI-99/4A' by Peter M.L. Lottrup. It is presented for the Editor/Assembler Module. Comments indicate the changes that will make it run from the Mini-Memory module. If you have either of the two modules, then please, try this program out. I believe that it demonstrates a few fundamentals of the TI Assembly Language.

```

ID' 'GUESS'
REF VMBW,VMBF,BPLLNA
REF VSBW,KSCAN
DEF BG          PROGRAM NAME REFERRING TO START LABEL.

OMIT THE ABOVE LINES IF USING MINI-MEMORY.
BUT SUBSTITUTE, THROUGHOUT THE PROGRAM, THE FOLLOWING:

VMBW - >602B
VSBW - >6024
VMBF - >6030
KSCAN - >6020
BPLLNA - >601B

FOR THE MINI-MEMORY SUBSTITUTE THE DEF FOR 'BG' AND INSERT
THE PROGRAM NAME, 'BE' (OR WHATEVER YOU PREFER), INTO THE
REF/DEF TABLE AS FOLLOWS:

                                ADRG >701E
                                DATA >7FE0
                                ADRG >7FE0
                                TEXT 'BG'      (MUST BE 6 CHARACTERS LONG)
                                DATA >7D50    (STARTING ADDRESS OF PROGRAM)

                                ALL COMMENTS MAY ALSO BE OMITTED.
                                THERE ARE MANY LABELS USED SO ADRG TO ABOUT >7D50 BEFORE YOU START.
                                THE FIRST EXECUTABLE INSTRUCTION IS AT THE LABEL 'BG'.

                                TO MAKE THIS PROGRAM LINKABLE FROM BASIC ALL TEXT I/O
                                MUST BE OFFSET BY >60.

BG  MOV  R11,@RA      SAVE THE RETURN ADDRESS.
    LMP1 NS
    MOV  @>B3C0,@R1  GET RANDOM NUMBER SEED
ST  BL  @CL          CLEAR SCREEN
    LI  R0,737
    LI  R1,TL        TITLE
    LI  R2,12
    BLW  @VMBF

```

CONT'D NEXT PAGE.


```

BL @SC
BL @RN
LI R0,737
LI R1,E1
LI R2,20
BLWP @VMBW
BL @SC
LI R0,737
LI R1,E2
LI R2,16
BLWP @VMBW
BL @SC
BL @SC
LI R0,737
LI R1,00
LI R2,19
BLWP @VMBW
CLR @B374
BLWP @KSCAN
MOVB @B37C,R1
COC @K,C,R1
JNE K1
MOV @B374,R1
CI R1,>0030
JLT K1
CI R1,>003A
JGT K1
MOV R1,066
SWPB R1
LI R0,737+19
BLWP @VSBW
BL @SC
BL @SC
MOV @66,R1
AI R1,-48

*
C R1,@RD
JLT LT
JEG EQ
LI R0,737
LI R1,HI
LI R2,8
BLWP @VMBW
JMP NG
LI R0,737
LI R1,LO
LI R2,7
BLWP @VMBW
EL @SC
BL @SC
B @B1
LI R0,737
LI R1,FT
LI R2,15
BLWP @VMBW
BL @SC
BL @SC
LI R0,737
LI R1,AG
LI R2,16
BLWP @VMBW
BLWP @KSCAN
MOVB @B37C,R1
COC @K,C,R1
JNE K2
MOV @B374,R1
SWPB R1
LI R0,737+16
BLWP @VSBW
CI R1,>5900
JNE T1
B @ST
CI R1,>4E00
JNE K2
BL @SC
BL @SC
LI R0,737
LI R1,BY
LI R2,7
BLWP @VMBW
BL @SC
BL @SC
BL @DL
BL @CL

```

```

GET RANDOM NUMBER
INFO LINE 1
INFO LINE 2
ASK FOR GUESS
DO NOT SCROLL.
SET KEY BOARD TO SCAN TO BE 0.
WAIT FOR KEY PRESS
GET AND TEST STATUS.
GET VALUE (ASCII CODE IS IN RIGHT BYTE)
TEST FOR KEY
BETWEEN 0 AND 9.
SAVE THE GUESS
DISPLAY GUESS
AND SCROLL 2 LINES.
GET GUESS FROM MEMORY.
SUBTRACT 48 FROM ASCII VALUE
TO GET THE NUMERIC VALUE
TEST GUESS VS RANDOM NUMBER
JUMP TO THE APPROPRIATE MSG.
GREATER THAN MSG
LESS THAN MSG
SCROLL 2 LINES AFTER
DISPLAY RESULT OF THE GUESS.
GO BACK FOR ANOTHER GUESS
CORRECT GUESS.
ASK IF WANT TO PLAY AGAIN
WAIT FOR KEY PRESS.
GET ASCII VALUE OF KEY PRESSED.
DISPLAY ON SCREEN.
COMPARE TO 'Y'
YES, GO BACK TO START
IF NOT 'N' THEN WAIT FOR ANOTHER KEY PRESS
NO, SAY GOOD BYE
DELAY
CLEAR THE SCREEN

```

```

* EXIT THE PROGRAM AND RETURN TO CALLING PROGRAM.
CLR R1
MOVB R1,0>B37C CLEAR THE STATUS BYTE.
MOV @B37C,R1 FREE OF THE PROGRAM RETURN ADDRESS.
B *R11 RETURN TO THE CALLING PROGRAM.

* THIS ROUTINE CLEARS THE SCREEN
CL CLR R0 SET SCREEN POSITION TO TOP LEFT CORNER (LOC 0).
LI R1,>2000 PUT THE ASCII BLANK INTO R1.
CI BLWP @VSBW DISPLAY A BLANK.
INC R0 INCREASE POSITION BY ONE.
CI R0,760 TEST FOR LAST POSITION
JLT C1
B *R11

* THIS ROUTINE SCROLLS THE SCREEN
SC LI R0,32
LI R1,00 GET SECOND LINE
LI R2,32
BLWP @VMBW
AI R0,-32
BLWP @VMBW DISPLAY LINE AT LINE ABOVE IT
AI R0,64 POSITION AT NEXT LINE
CI R0,760 TEST IF FAST BOTTOM OF THE SCREEN
JLT S1
LI R0,735
LI R1,>2000
S2 BLWP @VSBW CLEAR THE LAST LINE.
INC R0
CI R0,760
JLT S2
B *R11

* THIS ROUTINE CREATES A DELAY OF ABOUT 3 SECONDS.
DL LI R12,3 OUTER LOOP COUNT
D1 LI R5,>FFFF INNER LOOP COUNT
D2 DEC R5
JNE D2 INNER LOOP COUNTS DOWN TO ZERO
DEC R12 OUTER LOOP COUNTS DOWN TO ZERO
JNE D1
B *R11

* THIS ROUTINE GENERATES A RANDOM NUMBER FROM VALUES IN R1 AND 50.
RN MOV @R1,R0 LOAD R1 INTO REGISTER 9.
MPY @50,R0 MULTIPLY R1 BY 50.
MOV @R1,R1 STORE THE NEW RANDOM VALUE IN R1.
CLR R6
DIV @TN,R0 DIVIDE THE RANDOM NUMBER BY TEN.
MOV @R1,R0 STORE THE REMAINDER IN RN.
B *R11

* PROGRAM MESSAGES AND DATA STORAGE MEMORY.
MS BSS 32
TL TEXT 'NUMBER GUESS'
LO TEXT 'TOO LOW'
HI TEXT 'TOO HIGH'
R1 TEXT 'YOU GUESSED IT!'
AG TEXT 'TRY AGAIN' (Y/N)'
QU TEXT 'WHAT IS YOUR GUESS?'
E1 TEXT 'THE NUMBER I HAVE IS'
E2 TEXT 'BETWEEN 0 AND 9.'
BY TEXT 'SEE YA!'
RA DATA >0000 RETURN ADDRESS FOR THE PROGRAM.
BU BSS 32 SCROLL BUFFER FOR A SCREEN LINE.
SD DATA >0025 RANDOM NUMBER MULTIPLIER.
RD DATA >0000 RANDOM NUMBER STORAGE.
RI DATA >0000 RANDOM NUMBER SEED.
KC DATA >2020 STATUS MASK FOR KEY PRESSED.
TN DATA >000A THE VALUE OF TEN, USED TO GET A RANDOM NUMBER.
GS DATA >0000 GUESS STORAGE.

* END OF PROGRAM. START LABEL IS B6.
END

```

FORTH:

Sorry! Due to time and space considerations, the FORTH help section will have to wait until next month.

Winnipeg 99/4 Users Group Membership Application Form

Name: _____

Address: _____

Phone: (____) ____ - ____ Age: ____ Postal Code: _____

How long have you had your 99/4A? _____

What made you purchase a 99/4A computer? _____

Do you own another computer? If yes, state the type and any other peripherals you use with it _____

Do you make your own programs for your 99/4A? If yes, state the type and what languages you use _____

Please state the equipment you use in your system: _____

A yearly membership to the Winnipeg 99/4 Users Group costs ten dollars which lets you receive a monthly newsletter (except during the months of July and August) and have access to the Public Domain and the Member Written Program Libraries as well as attend any general meeting of the Winnipeg 99/4 Users Group. We also mail out newsletters to those members who are not able to attend most of the general meetings. In order to do this you must notify the Newsletter Publisher, Dave Wood, of your intentions. The Public Domain and Member Written Program Libraries will be available for rural members by he/she contacting the librarian. For additional information on the policies of the W99/4UG, please contact one of the executives.

Please make checks payable to the Winnipeg 99/4 Users Group and forward the application form and cheque to:

Bill Quinn
634 Knox Street
Winnipeg, Manitoba
Canada R2Y-1L5

Date: _____ Signature: _____

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1	LAST WORD ON TI	BOOK	INFORMATION	\$10.00	895-7067	0 = PAGE #
2	FNDMNTL ASM LNG	BOOK	INFORMATION	\$10.00	895-7067	1 = ITEM
3	MDVL GRPH ADV	CASSETTE	SOFTWARE	\$10.00	586-6889	2 = TYPE
4	SUNDIAL ISL 1&2	CASSETTE	SOFTWARE	\$10.00	586-6889	3 = DSCRIPTION
5	BEST SOFTWARE	CASSETTE	SOFTWARE	\$10.00	586-6889	4 = PRICE
6	TEACHSELF BASIC	CASSETTE	SOFTWARE	\$5.00	633-4598	5 = PHONE
7	TEACH SELF XBAS	CASSETTE	SOFTWARE	\$20.00	668-1781	
8	DOW-4 GAZELLE	CASSETTE	SOFTWARE	\$20.00	586-6889	
9	EGYPT GRPH ADV	CASSETTE	SOFTWARE	\$10.00	586-6889	
10	TEACH SELF XBAS	CASSETTE	SOFTWARE	\$25.00	668-4804	
11	TEACHSELF BASIC	CASSETTE	SOFTWARE	\$20.00	632-4987	
12	TEACH SELF XBAS	CASSETTE	SOFTWARE	\$18.00	888-1346	
13	TEACHSELF BASIC	CASSETTE	SOFTWARE	\$30.00	668-4804	
14	TI-99/4A	COMPUTER	HARDWARE	\$70.00	633-4598	
15	TI-TREK	DISK	SOFTWARE	\$10.00	668-4804	
16	WIZARD&PRINCESS	DISK	SOFTWARE	\$30.00	586-6889	
17	TREASURE HUNT	DISK	SOFTWARE	\$10.00	586-6889	
18	TI FORTH PKG	DISK	SOFTWARE	\$40.00	895-7067	
19	PUBLICATIONS	MAGAZINES	BACK ISSUES ECH	\$1.00	586-6889	
20	SIGNALMAN MARK3	MODEM	HARDWARE	\$100.0	586-6889	
21	RTRN TO PRT ISL	MODULE	SOFTWARE	\$20.00	633-4598	
22	PARSEC	MODULE	SOFTWARE	\$20.00	633-4598	
23	SNEGGIT	MODULE	SOFTWARE	\$20.00	633-4598	
24	MASH	MODULE	SOFTWARE	\$20.00	633-4598	
25	SUPER DEMON ATK	MODULE	SOFTWARE	\$20.00	633-4598	
26	JAWBREAKER II	MODULE	SOFTWARE	\$20.00	633-4598	
27	INDOOR SOCCER	MODULE	SOFTWARE	\$20.00	633-4598	
28	TI MUNCHMAN	MODULE	SOFTWARE	\$20.00	633-4598	
29	HOPPER	MODULE	SOFTWARE	\$20.00	633-4598	
30	EXTENDED BASIC	MODULE	LANGUAGE	\$150.0	633-4598	
31	CHISOM TRAIL	MODULE	SOFTWARE	\$20.00	633-4598	
32	THE ATTACK	MODULE	SOFTWARE	\$20.00	633-4598	
33	TI MUNCHMAN	MODULE	SOFTWARE	\$20.00	633-4598	
34	TI INVADERS	MODULE	SOFTWARE	\$20.00	633-4598	
35	VIDEO CHESS	MODULE	SOFTWARE	\$45.00	633-4598	
36	CAR WARS	MODULE	SOFTWARE	\$30.00	668-1781	
37	HUNT THE WUMPUS	MODULE	SOFTWARE	\$30.00	668-1781	
38	BLACKJACK	MODULE	SOFTWARE	\$20.00	633-4598	
39	BLASTO	MODULE	SOFTWARE	\$20.00	633-4598	
40	TOMBSTONE CITY	MODULE	SOFTWARE	\$20.00	633-4598	
41	TUNNELS OF DOOM	MODULE	SOFTWARE	\$50.00	633-4598	
42	TUNNELS OF DOOM	MODULE	SOFTWARE	\$50.00	633-4598	
43	PARSEC	MODULE	SOFTWARE	\$20.00	633-4598	
44	BRISTOL CSSTT	PLAYER	HARDWARE	\$20.00	586-6889	
45	BASE2 MODEL 800	PRINTER	DOT MATRIX	OFFERS	632-9936	

PRINTER FOR SALE

Base 2 Model 800 dot matrix printer. Accepts data in many formats; Centronics Parallel, IEEE488, RS232 75-9600 baud, and the tty standard 20ma loop. Prints bidirectional. Mono may be selected for graphics mode. 1920 character print buffer. Additional character sets may be added in EPROM or DOWNLOADED into printer ram. Variable tractor feed to 9-1/2 inch. Friction feed available for single sheet operation. For more information contact Steve Zabarylo at 632-9936. Offers please!

Steve also has a line on good 40 channel CB radios for less than \$20.00. They come as a bare unit. If interested contact Steve at the above number.

FILE: SWAP/SELL
DATE: 9/5/85
TITLE: SWAP & SELL SECTION