Newsletter

MAY 1987

The Winnipeg 99/4 Users' Group is a non-profit organization made up of people who use the TI-99/4A Home Computer and compatibles. The Winnipeg 99/4 Users' Group holds its' meeting on the last Sunday of each month. The whereabouts and time of the meeting can be found out by calling one of the Winnipeg 99/4 Users' Group Executives. The Winnipeg 99/4 Users' Group publishes a newsletter twelve months of the year. The content of the newsletter doesn't necessarily represent the view of the Winnipeg 99/4 Users' Group. With this in mind, the group can't be held responsible for errors, omissions, or copy infringements, as presented in the newsletter. Unless otherwise stated, all articles may be republished in other newsletters provided that source and author are identified. A newsletter exchange will be put on hold when no incoming newsletter is received for three concurrent months. Reactivation of the newsletter exchange will only start once a incoming newsletter is received.

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EDITORIAL:

Editor's thoughts for the month.

The last meeting was held at the home of Dave Wood. The attendence was pretty good mainly due to our announcement in the Free Press Classifieds. Demonstrations were given of new German animation programs, Turbo Pascal and Jim Bainard's Quick Print and My Type Writer combination.

A suggestion to the Executive is that we place an monthly advertisement in the Free Press Classifieds (623) on the weekend before the meeting advertising where and when the meeting is going to take place.

Rick Lumsden informed me from a phone call with Bob Boone that the Ottawa TI Fest was a overall success. There will be more details later.

I want to thank Rick Lumsden and Brian Lesko for their submissions this month. I also want to send a special "GET WELL SOON" to Rick who is suffering from mono.

MISCELLANIA:

Miscellaneous news and reminders.

The latest R/D Computing, Ver 21, talks about a company called ACCESS ENGINEERING INC. (AEI) developing software for Myarc's Geneve 9640. AEI was founded in the spring of 1986 by Jim Horn, Richard Roseen and Chris Bobbitt. Their products ADOS--AEI Disk Operating System, AMOS--AEI Multi-Tasking Operating System, AC-BASIC and AC-PASCAL are supposed to bring the 9640 into the big leagues at a reasonable price. AEI can be reached at 9120 Rhode Island Ave., College Park, Maryland 20740. This issue also contains the 8K DSR ram project by John Clulow which is supposed greatly enhance your 4A with extended low memory (16K) and a real time clock/calendar.

Tex*Comp has some software and hardware out for our computers. The modules Junkman Jr., Star Runner, Wordwriter, Wordwriter+, Superspace II 32K Memory Module, Super 4th, Console Calc, Console Calc+ and Paraprint Printing connection. The advertisement appeared in MICROpendium.

Scott Darling, Sysop of the Texas Instruments Roundtable On the General Electric Service called GEnie, wrote to us of the availablity of GEnie to Canada. The only problem is that GEnie ports are only available in Vancouver, Calgary, Toronto and Montreal at the present time. The pricing is as follows: 300/1200 bps NON prime time access is $9.50/hour. PRIME is $50.00/hour. NON Prime time hours are 6:00 PM to 8:00 AM local time zone. There is a one time enrollment charge of $25.00 which includes a user manual. Billing is either Visa or Mastercharge and all funds are in Canadain dollars. If you would like to see a GEnie port in Winnipeg please write to: TIKSOFT; W. 5515 WOODSIDE; SPOKANE,WA 99208

I was looking through TI GPL manual and glanced upon the best color combinations. I noticed that most of the TI modules fall into the forth best category of white on light blue. I guess they never bothered to be the best!

OUT AND ABOUT:

Feature articles from the various sources of information.

The following appeared in the MADHUG April 87 Newsletter:

ELECTRO-STATIC DISCHARGE SENSITIVE DEVICES (ESDS) by Ken Read

The evolutionary developments in semiconductor and micro-electronics technology have brough about many benefits to industry. The most obvious is the ability to perform many complex functions reliably, with equipment that occupies very little space. But, along with this new technology came a new problem - electro-static discharge sensitive devices!

What is ESD? The most common concept of ESD is the miniature lightning bolt or shock we feel in low humidity areas when walking across a carpet and touching a door knob! Most static electricity occurs well below our perception level of 1500 to 2000 volts. That's right folks, I said 1500 to 2000 volts! And, depending on the environment, charges of up to 4000 volts may not be felt! Static electricity is generated whenever two substances are rubbed together, separated, or flow across one another (compressed air used to clean components). This static charge is stored on nonconductive material and stays in a localized area waiting to discharge. In conductive materials, the charge is rapidly distributed over the entire surface and the surface of other conductors which it comes in contact with.

Damage caused can be catastrophic, latent, or just loss in accuracy. It is caused by induced voltage field effects and/or electro-static discharge. A direct discharge (actual exchange of electrons by contact) is more likely to be the method of destruction for the individual uninstalled component. On the other hand, the uninstalled printed circuit board is more susceptible to the induced discharge generated from the intensity of the voltage field surrounding a charged person or object.

A charged person approaching a work bench is surrounded by an electric field. If the person is charged to 5000 volts, the innermost "shell" around them

is about 4000 volts! The next "shell" would be about 3000 volts, and so on! A voltage sensitive device, especially an uninstalled circuit board, may vary well be damaged by exposure to the extreme high-field intensity surrounding an individual's hand as he reaches towards the work bench!

Most of the research for the article so far was done by MSgt Ed Able who is a member of the Strategic Air Command (SAC) Maintenance Standardization and Evaluation Team (MSET). He wrote an article in the MSET Quarterly Review on this subject as it pertained to the avionics maintenance shops in SAC. I thought some of you might be interested in the subject of ESD since we are all "playing" with our TI-99/4A's and many of us are going inside and making hardware changes!

I'd like to share two simple procedures that can be performed easily to demonstrate static electricity. Earlier in the article I said that static electricity is generated when two substances are separated. The closer the two substances are and the faster they are separated, the higher the static charge induced will be! Now, take a roll of ordinary scotch tape and zip off a six inch piece real fast. Now, zip off another six inch piece just as fast. You just induced a very high static charge in both pieces of tape and they are both charged alike. We know that like charges repel each other so we can prove the charge is there by holding both pieces of tape together at one end. The other ends will try to get away from each other! Okay, for the next demonstration you'll need an ash tray with some cigarette ashes in it and some more scotch tape. Zip off another piece of tape and hold it in both hands horizontally over the ashes. Slowly, bring the tape down closer to the ashes. If you zipped the tape off real fast, ashes should start to jump up and stick to the tape when you're about an inch above! If my memory serves me correctly, it takes about 10,000 volts of static electricity to make those ashes jump one inch!

Since we have DOLLARS tied up in our computers, it stands to reason that we should take every precaution to prevent damage to circuits. As a minimum, you should have a conductive mat on your work bench. This mat must be connected to a good earth ground THROUGH a one megohm resistor! The purpose of the resistor is to limit current flow between you and ground should you accidently come in contact with live voltage. In addition to the mat you will need a wrist strap that is also connected to earth ground THROUGH a one megohm resistor. This will insure any charge on your body is dissipated. (ED note: MTS should look into this with the problems they've been having!) Ideally, any soldering you do to the IC chips should be done with an iron that has a grounded tip. The wrist strap can be purchased at Radio Shack for $2.19, but I'm not sure who handles the mats. Any conductive plate will do as long as you connect it to ground. (Don't forget the resistor!) With these few simple

precautions we can be reasonably sure we will not damage our equipment. Happy modifying!

The following appeared in CIM99 April 87 Newsletter:

WHO'S THE FASTEST GUN ALIVE? by Paul Gagnon

I often asked myself the question, "Which disk copier is the fastest and the most reliable?"

I decided to answer my own question by bench marking each copy program I could find.

The verifications were made on a single sided disk, with 357 sectors occupied.

The copies were made using a copy disk already initialized, and two disk drives.

The copies resulting from these tests all proved to be accurate and faithful to the original, the above chart is self explanatory.

COPIE'S COPIERS	AUTEUR/AU'T	VE IN LOAD TEMPS/TIME		
COPY MASTER	BARRY BOONE	1	E/A-3	0:28:06
TURBOCOPY	KNOW-WARE	1	E/A-5	0:34:20
RAPID COPY	BARRY BOONE-TEX.	1.0	XB	1:23:70
REDISKIT	JAMES SCHROEDER	1.1	E/A-5	0:41:48
TRACK HACK	BRIAN D. HALL	2.0	E/A-5	1:52:88
FAST-COPY	ROBERT L. JONES	RAMDISK	MENU	2:03:53
TRACK HACK	MICRO-TECH	2.1	XB	2:06:73
TRACK COPY	MICHAEL BALLMAN	1.1	E/A-5	2:08:27
ULTRA-COPY	BRUCE CARON	2.0	E/A-5	2:20:45
FLOPPY-COPY	CHRIS FAHERTY	1	XB	2:22:12
DM-1000	BRUCE CARON	3.5	XB	2:22:78
KOPYKAT	JACKSON,MS. U.GROUP	1	XB	2:22:81
NIBBLER	TARIK ISANI	1.2	XB	2:28:86
SUPERCOPY	CLINT PULLEY	1.0	E/A-3	2:31:12
QUICK COPY 2	QUALITY SOFTWARE	1	E/A-5	2:37:02
MASS COPY	STEPHEN LAWLESS	3.01	XB	2:37:47
COPY-CAT	C.R.DISTRIBUTION	1	XB	2:38:95
RAW 2 DRIVE	BARRY TRAVER	1	XB	4:59:41

The following article was asked to be included in our newsletter by a mutual acquaintance, Mike Heuser.

After I read a lot about your club life in your club magazines, I now want to give you an impression of the TI-scene here in the Federal Republic of Germany. If you are satisfied with this article and you are interested in further information, please, write to the editorial staff of your magazine. Your questions will be led to me.

First some personal details:

My name is Mike Heuser, I'm 27 years old (or young!) and my profession is to be a clerk in a forwarding agency, but now (January '87) without job. I got my TI in June '84 and I belong to the founders of the TI 99er Workshop Rheinland. From the very beginning my function is to care for the management, the co-operation and the

public relations of our computer initiative. Enough prattled - now to the kernel.

Generally, there are a lot of activities in the TI scene in Germany and the rest of West Europe. In the most countries the users have formed clubs, which include the whole country. In almost every town or city there are subdivisions, administrated by a "headquarter", which is oftenly in the capital of the country. - It is not so in the FRG. Here exist 15 - 20 independent clubs, which all more or less work together. In the past there had always been activities to found a central co-ordination, but this ran aground because of the great individualty of the single clubs. Most of the clubs are limiting their efforts to their regional environment, that means, the members are living mostly in the same city or in the surrounding country. There is only one club whose members are living all over the FRG, but the least part of them know each other personally. They get only in contact to each other by letter or by their club magazine. These kind of club is interesting for people, who are not able to be present on a club meeting because of personal or professional reasons.

There are also huge differences in the way of organization between the single clubs. In the most clubs there are chosen chairmen, secretaries, treasurers and their substitutes. We have seen in the last time, that the presidencies of these clubs have to care firstly for the administration of the members and therefore they have less time for our main thing - the TI. To avoid these inflexible administration, there have been built some loose user organizations like our TI 99er Workshop Rheinland, in which every member is working corresponding to his capacities - and every member is also supported by the club. Indeed, there are here persons, too, who care about the co-ordination inbetween the clubs, who build a contact address, like I'm doing it in our Workshop. But these people have turned out to be the right men or women on the right places - without being chosen for their jobs. You see, it is possible to work effectively even without a stiff administration or organization.

Like I mentioned before, the German clubs work together somtimes at special projects. It is planned, for example, to edit a club magazine on disk in WRITER form. We also took over the organization for a library for general FREEWARE and PD software. We are also responsible for the contact with clubs abroad, because we have experience with the intercourse with clubs all over the world.

But also the projects, which are worked out independently by the single community are very important. So, one club has developped an Eprom-disk, which works without any problems in the P-box. Another group has developped a digitizer for the TI. Almost every month other groups edit one or more new programs for the TI (most part in X-basic). There are groups, which are occupied especially with FORTH, C, PASCAL or since before long with PILOT. It cannot be denied, that the general know-how of the German clubs, concerning the hardware, is on a high level.

That is, not at last, depending on the fact, that there are still two magazines, which are engaged for the TI, although there are no more magazines in the most other countries, except the USA, which are still writing for the TI. One of these magazines (TI-REVUE) edits articles, listings, guides to constructions only for the TI. Indeed, this paper cannot be compared to MICROpendium at all, but it is better than nothing. The other magazine is treating also other computer systems beside the TI. But here, something very amazing has happened. It is hardly to believe! The CK (Computer Kontakt) has abolished their Commodore part in order to have more space for TI articles. (Good news!!!). This is also a reaction of the strong efforts of the German TI clubs.

There are even a lot of sellers who have products for the TI in their offer but mostly to very high prices. Therefore some clubs have decided to buy their most software in the USA. The hardware, made in Germany, is of the used good German quality. So, ATRONIC has brought out the CPS 99, which is a periphery system with two DS/DD disk-drives, 32K extension, two RS232 and a PIO interface. And that all in a box that is so big as a disk-box for 80 disks. Some time ago MECHATRONIK came out with the 128-GRAM-CARD. This firm has now a brandnew 80-signs-extension on the market, which contains the same video chip as MYARC's GENEVE, the MSX 9938 II. This new part for the periphery is a stand-alone appliance and it has the same graphic possibilities as the GENEVE. Moreover there are no problems at all with the software compability. All programs function without any changes at once and some programs, which were originally written for the GENEVE work on the 80-sign-card, too. The best prove, that the German TI scene is still alive, is our first international TI-user-meeting on November 29th 1986. On this meeting, the first of this kind in Germany, TI-clubs from the Netherlands, Belgium, Luxemburg and Switzerland and, of course, all German clubs were present. Also sellers from Germany and the neighboured countries were there. We were especially glad about the visitors from the USA. Many members of the US-Army and of the Canadian Air Force came to Cologne. Moreover we could welcome Lou Philipps (MYARC), Paul Charlton and Mack McCormick (MICROpendium). Mack wants to come out with a great article concerning the meeting in the next edition of MICROpendium.

So, I hope, you have had an interesting impression of the TI scene in Germany. That's it for now from the craziest German TI club, the TI 99er Workshop Rheinland, with its joke of the year 1986 "PRESS QUIT TO BEGIN" and the sentence of the year 1987 "TI-99/4A never die!".

Mike Heuser TI 99er Workshop Rheinland. After all, here
are two addresses, if you are interested in the mentioned
hardware extensions: CPS 99: ATRONIC Meiendorfer Weg 7
D-2000 Hamburg 73; GRAM-Karte 80-Column-expansion:
MECHATRONIK GmbH

REVIEWS:

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

A Review by Paul Degner

Dots-Perfect

You probably noticed in last month's newsletter an
advertisement for Dots Perfect, a EPSON printer
enhancement. Shortly after placing the advertisement in
the newsletter, I decided to order the Dots Perfect
package as I own a Epson MX-100 printer and like to see
my printer keep up with the times in desktop publishing.

A couple of weeks later I received a package
indicating that Dots Perfect was inclosed. There was no
additional cost involved in bringing it up other than $10
in federal sales tax. Dots Perfect comes in a plastic
case with manual, reference sticker and warranty card.
Dots Perfect is a little board containing a 27128 eprom,
spring hook and a couple of 74LS chips and that board
plugs into one of the printer roms sockets. The manual
is very helpful explaining the correct way to
disassemble, install Dots Perfect and reassemble your
printer. After reassembling the printer, I tried the
test they suggested and found all was in working order.
Dots Perfect gives you the following features:
1. NLQ (Near Letter Quality) Print mode.
2. IBM Graphics Printer Emulation
3. Buffer Clear Command
4. Panel Button Font Selection
The NLQ mode nearly is like Daisy Wheel output
quality. The dotty look of draft mode is gone and a
clear, fullbodied character set takes it's place. The
cover of the newsletter is a sample of what the NLQ print
mode can do.

The IBM GPE mode has most of the foreign language
characters you need for special documents. This mode
also caters to those wanting box graphics as well.

The PBFS mode is handy for printing files you forgot
to include those special print modes such as emphasized,
condensed etc. All you need to do is to use your printer
panel buttons to select between 13 different printing
modes just before or during your printing session.

I find it a good buy at $65 US and Dots Perfect is
available from Myra D. White; 849 E. Bonita Ave; La
Verne, CA 91750

A Review by Brian Lesko

The Spad XIII flight simulator

I have ordered many programs through mail order, and
I am sure that I am not the only one to find the
description did not fit the product!

However, this time I would get a pleasant surprise.
One of the first things that I was impressed with is the
very well written users manual. I found it to be well
documented. It includes a map of the planes operational
area. This comes in handy when you want to find the
interesting sites available in this program. They
include the Eiffel Tower, French airfield, German
airfield, Seine River, trenches, hills, 4 villages(2
destroyed) and many trees. All the buildings and the
German Zeppelins and bi-planes are in 3-d graphics. All
can be seen from any of 7 available views. These are
front, left, right, back, up, down and front without the
Spads graphics.

When loaded from Extended Basic, you are presented
with a forward view from inside the Spads cockpit. Since
this is a WW I plane, your instrument panel is not very
complicated. Do not let this fool you, this is a machine
lanuage program, so the action is realistic. Your
instrument panel includes gauges for airspeed, fuel,
altitude and a compass.

As your plane is on the runway, facing north, you go
to full throttle to achieve flight speed. Here is where
you decide to either fight the enemy or go site seeing.
I chose to see the Eiffel Tower(since this is probably
the only way I ever will). After finding the Seine
River, I headed south to the Eiffel Tower. Eventually I
found it, only to realize that the plane was almost out
of fuel. So I ended up crashing my Spad XIII into the
Eiffel Tower. This caused a quick end the game! So the
next time I decided to take on the enemy airforce in
France. As I headed east to the German base, a large
cigar shaped observation balloon(Zeppelin), was sighted
on the horizon. The Spad was heading straight for it, so
when the plane was close enough, a burst of ammo from the
twin front mounted machine guns, caused the Zeppelin to
explode into flames and smoke. It was interesting to see
the wreckage fall to the ground in ruin. Next came the
seemingly helpless German bi-plane on the ground, near
the enemy airfield. As I guided the Spad, intending to
bomb the german plane, it took flight before it could be
reached. Now it was here, in aerial combat, that the
program proved itself. Many acrobatic manouvers are
possible if you practice the basics of flying first.
Since I had not done this, my Spad was promptly spiraling
down, out of control. Fortunately for me, I had an
unlimited supply of Spads.

I have found this flight simulator to be the best

available for the TI-99/4A. With its great 3D graphics, responsive keyboard and joystick controls. It is both an entertaining and educational program.

It is available from: TENEX COMPUTER EXPRESS; P.O. Box 6578; Southbend Indiana 46660; (219)259-7051

Price : $24.95 U.S. plus shipping

HELPFUL HINTS AND TIPS!
(FOR THE USERS, BY THE USERS!)

This column features tips brought to my attention from members of this group. WARNING: These hints and tips are to be used at your own risk!

By Rick Lumsden

Well the next couple of months we plan to present you with what we hope will be some very useful advice on the operation of your computer and some of the more popular programs for the computer. In the past our executive has channelled a lot of energy towards the programming of the TI and we have pretty well run out of things to say and the interest in programming seems to be waning. These tutorials will start out pretty basic so all you more experienced please bear with us and things will get more involved very shortly. Any questions can be directed at the authors at the following meetings and if there is enough interest, we may give short lessons during the meetings on the subjects of the previous newsletters.

We'll start with the various formats the TI uses to store information on cataloging a disk and looking under the TYPE column in any of the Disk Managers. There are many, many types of files and the programmer is responsible for the majority of them however there are some standards and responsible for the majority of them however there are some standards and these are the ones I'll deal with.

The first type we have all seen and is the form the computer uses to store Basic and Extended Basic programs on disk. Under the TYPE column and beside the the Basic or XB program it will say simply 'PROGRAM'. This file is loaded into the computer with the 'OLD DSKx.FILENAME' command and then run. Very simple, BUT, there are two exceptions. The first one is an Editor/Assembler PROGRAM IMAGE file and appears under the type column as PROGRAM. This type of file is an assembly program and is loaded with option #5 of the Editor/Assembler cartridge or one of the various XB loaders available. This program is created with a special program on the E/A disk and will be discussed in later issues. It is really quite easy to distinguish between the two with one of two methods. The first method is to try to load the program from XB with the 'OLD DSKx.FILENAME' command. If the file is indeed an XB program, it will load and the cursor will return

with no error codes. However if it is a E/A program file, the program will appear to be loading but before the cursor re-appears, you will receive a warning 'honk' and an error 'I/O 50'. I'll discuss loading these types of files a little later. The other method of telling the two apart involves using another program which is available as Fairware. The program is Funnel Writer and the way to check the files is like this. First load up Funnel-Writer and load the Editor. Type in SD on the command line(Show Directory) and press enter. Install the disk with the 'PROGRAM' files in disk one. Now enter '1' when prompted for a drive number. The drive will start and you will have a directory of the files on disk. At the bottom you will see press CTRL or SHIFT to scroll or press ENTER to return to editor. Here's the trick!! Don't press either of these but attempt to quit with the FCTN = buttons. The drive will start again and when it stops, beside each of the PROGRAM types will be either an EA or BX. The EA means an Assembler file and the BX means a Basic or XB program.

Just about forgot one other type of program file that is also used. This is the PROGRAM format used by some modules and programs to store their files. Three modules that I know that use PROGRAM to store files are: Adventure,Tunnels of Doom and Personal Record Keeping. TI-Artist also uses this format but the filenames for TI-Artist have a _P or _C tacked on the end. The files stored by the modules is not so obvious and the best method would be to attempt to load them both ways mentioned above and if all else fails try loading them into the computer when running the module program.

The last problem with Basic and XB programs deals with programs that are bigger than about 12K or about 48-50 sectors on disk. These type of programs are stored as files in the INT/VAR 254 format. They still load through Basic or XB wth the OLD DSKx.FILENAME command but are slower loading. The reason they are slower loading and stored in a different format is due to the architecture of our computers and I'll try to explain this as I understand it. Please realize this is my own interpretation and may not be entirely correct. It also is not required to understand how to load various files but may be of interest to some. I'll start with the slow loading part. When you type in the OLD DSKx.FILENAME command the Disk controller starts the drive and looks for the appropriate filename. It also determines the file type. If the file is a 'PROGRAM' file, the program is copied from disk to a buffer area and then moved 'en bloc' to the proper area of memory. If the file is in the INT/VAR 254 format, the controller copies 1 sector at a time into the buffer, the computer determines the area of memory to send that data and sends it, clears the buffer, and copies the next sector in and repeats the entire process until the complete file is loaded. I say one sector because a sector on your disk(those numbers

that fly by when you initialize a disk) is 256 bytes and since the file is saved as INT/VAR 254 each block of the file very nearly fills an entire sector. I'll save explaining the INT,DIS,FIXED,VAR and sizes till later.

The reason for the storing in a different format is speculation but in my mind seems to make sense. It would also explain why TI mentions that programs larger than 12K cannot be stored on cassette. As we all know our consoles contain 16K of RAM memory. However this is Video Display Processor(VDP) ram and is not directly addressable by the CPU chip. This memory is utilized in different ways depending on the module or peripherals attached. When using a bare console, most all of the memory is available to be used for programming but there is a small portion of about 1K reserved for displaying what you see on your screen. When you hook up your PEB with drives, memory expansion etc. a bit more of this memory is allocated to various tasks bringing the total available VDP memory down to about 12K. Remember this is only the VDP ram and not your memory expansion. If your program exceeds this 12K limit, it will not occupy a contigious area of memory and is therefore stored in two distinct memroy areas in the computer. To save this fragmented program properly to disk as a PROGRAM file would be very difficult but as a INT/VAR 254 file would be quite simple. The operating system of the computer flags the disk controller when this condition exists and the controller then stores the program appropriately. This flag, being in the operating system, may not be able to distinguish between disk and cassette and thus the 12K limit to cassette. Like I mentioned, this is purely speculation on my part and would very much like to hear from others if I am wrong.

Now onto the next most common file types. They are the DIS/VAR 80 and DIS/FIX 80. Firstly a little explanation of the abbreviations used. DIS is short for DISplay and refers to how the computer stores the information on the disk. In display files, information is stored exactly like you see it on the screen, in readable(ASCII) form. In the INTernal format used by the large XB programs, it is stored as machine readable binary code. The advantage of the INTernal is it requires less room on the disk than DISplay files. The VARiable and FIXed refer to type of each file record. VARiable files may be of various lengths and are stored back to back on the disk with a record seperator. FIXed files are a fixed length and are padded on disk if the actual record is shorter than the maximum specified. The maximum is specified next with the 80. I'll put a little example here to try and clarify.

DISPLAY/VARIABLE 25
[this is 1st file[this is second file[

DISPLAY/FIXED 25

[this is first file*******[this is second file******[

[=file seperator
*=file padding

As you can see by the example, a DIS/VAR file will take less room than the same DIS/FIX file. Remember that the 25 specifies the MAXIMUM length and anything larger will be truncated.

DIS/VAR 80 is used by TI-Writer,Multiplan and the Editor/Assembler editor when storing files. My own speculation about the reason for the 80 is the fact the screen in both Editors is 80 Columns and when printing to the original TI Impact printer, it also was 80 columns and therefore everything worked hand in hand. All these type files are loaded through another program. The two Editors, Multiplan or even a properly written Basic program. They CANNOT be loaded with the OLD DSKx command.

The DIS/FIX 80 files are usually assembled code to be run out of the Editor/Assembler module option #3. They also can be files for a Basic program but we will deal with the E/A type. When encountering a DIS/FIX 80 file on disk, you must insert the E/A module, go to option #3 LOAD AND RUN, and type in the approriate drive and filename. These types of programs can be very difficult to run because some require the loading of more than one file and the insertion of a Start name. If you do not know the proper order to load the files or the start name, it can be near impossible. There are various ways around this and I'll discuss one here.

First we'll pretend to load a program normally through option #3 of the E/A. The files on disk are FILE1 and FILE2. With names like this it is fairly obvious which is to be loaded first, so push 3 for LOAD AND RUN and enter DSK1.FILE1. Wait for the cursor to return and then type in DSK1.FILE2. Now the program is loaded into memory but how do you start it. In XB you type run but this type of assembler code requires an entry name. You press enter when the cursor returns after loading the second file and the prompt PROGRAM NAME appears. If you are lucky enough to know the start name you type it in here(no DSK1.) and the program starts. Some programs in this form have been set-up to Auto-run once the files have been loaded. These ones do not require a start name and begin running once you have loaded in the final file.

Again Funnel-Writer can be used to load DIS/FIX 80 files. Go to the menu of Funnel Writer that has the option LOADERS. Press the number of the selection LOADERS and then hit 4 for LOAD AND RUN, then enter DSK1.FILE1. When that file has loaded the name will scroll up and then enter DSK1.FILE2. When that file has loaded, just press ENTER and you will have what is known

as the REF/DEF table. This is where the computer stores
the start name of the program. If there is only one name
here just hit FCTN 6(proceed) and the program will start.
If there is more than one you can move the cursor with
the arrow keys to a different start name and hit enter
again. Usually when you enter an improper start name you
may get a lock-up or improper program operation. You
will not harm the computer but it may get aggravating
after a while. With practice, you will be able to
identify start names more easily because generally
programmers use a start name that is easy to identify.

In this way Funnel Writer can be used to load most
E/A programs. The E/A programs stored in 'PROGRAM'
format discussed earlier can also be loaded here with the
third option in the loader menu where it says PROGRAM. A
little blurb about the E/A PROGRAM files is in order here
before I discuss loading them. You may have seen files
in PROGRAM format on disk that had similar filenames.
For example: MENU,MENV,MENW. These three files all make
up one single program and mut be on the same disk to load
properly. The E/A option #5 loader expects to load these
files one after the other and does it automatically. All
you have to do is enter the first filename. The reason
that the names appear similar is because the loader
expects the filenames to be the same EXCEPT for the last
letter or number. Each filename has it's last digit
incremented by 1 in the ASCII table. The MENU program
has the letter 'U' as a last letter and if you look this
up in your ASCII tables it shows a value of 85. MENV,
the 'V' has a value of 86 and MENW a value of 87. These
files can be renamed but MUST remain in their original
order and the last digit must be incremented by one from
the previous.

Loading these programs is very easy. Go to option
#5 of the E/A module and enter DSK1.MENU and the program
will load in all associated files and automatically
start. Funnel Writer can be used as well by going to the
LOADERS menu and pressing 3 for PROGRAM and then entering
the filename. There are also some programs out there
that will load this type of program from XB. These
programs and Funnel Writer work quite well but remember,
they are not the E/A module. The E/A module has the
loader in the module on a GROM chip and thus cannot be
overwritten by the program you are loading. The other
loaders load into an out of the way memory location not
generally used by programmers and usually work fine but
if the program you are loading is too large is was
written to occupy the same space as the loader you are
using the computer will crash. Again no harm done but
inconveneint. The same thing applies to the DIS/FIX 80
files.

One other type file that is becoming a lot more
common is the DIS/FIX 128. This is the format Barry
Traver's and Barry Boone's Archiver programs store their
files. In case you don't know what archiver is or does

I'll explain that first. The idea of an archiver is to
'archive' files that you want to keep but do not use
every day. You may want to keep them in a certain order
so you know what they are as well. For example say you
had 20 letters to Aunt Ethel on disk you had written with
your Word Processor, and for some reason you wanted to
keep them but they were saved as different names and it
was getting hard to keep track of them. You would load
up Archiver and select the option to PACK files. The
drive starts and checks all the filenames and asks if you
want to pack all files. If you had all the files you
want archived by themselves on one disk you would type
'yes' if they are scattered in with other files you would
type 'no' and the program would ask which files you would
like packed. Once you enter the filenames the program
asks for an output filename(e.g.DSK2.ETHEL)and making
sure you have plenty of room on the disk you would enter
one. The program starts to run and saves all the files
and their filenames in one large file under the name
ETHEL. The format of this file is DIS/FIX 128 and
appears as one file on the disk. Before you use or run
any of the programs or files in this one large file you
must use Archiver to Unpack the files first. This is a
great way to store various files you want to keep but are
having trouble keeping track of.

Well that just about covers the more common file
types but there are a lot of others. Generally when you
see a file like INT/FIX 117 or DIS/FIX 40, these are
files used by a program and are not runnable by
themselves. You must run the program(which will be in
one of the above formats) and it will load the approriate
file. Aslong as the files called for by the running
program are on the appropriate disk, all should be well.
There are even some Assembler programs that load
different files although those files are an actaul
working part of the program so be careful when renaming
and moving files.

I hope this has been a little informative and
hopefully next month we'll move onto how disks are
initialized and how the programs are stored there. This
will lead up to operating a Disk-Fixer and how to repair
and recover lost files on your disks. We hope to move on
to Funnel Writer and other things that allow you to
customize your computer and programs to suit your needs.
I am open for questions at anytime and my number is on
the newsletter cover. If you have some suggestions about
some other programs or operations you'd like explained,
mention them and we will endeavour to please. One of our
other members is going to be writing some short articles
on modifying the actual computer with some simple
projects so this tied with the programming mods you'll
soon have your computer working for YOU and be more
pleasurable as well.

XBasic program by Mike Swiridenko.

In keeping with the theme of Rick's contribution here is a simple XBasic program intended to demonstrate the use of files for information storage. This program was written initially as a vocabulary builder but was not completed. The code to update a definition was not written. Also no provision was made for deleting a word from the vocabulary.

The idea behind the vocabulary builder is to collect new words and their definitions. This program does this by creating two data files, called words and definition. The words file maintains the words in the vocabulary, while the definition file holds (you guessed it) the text of the definition. In order for the right word to be matched with the right definition a pointer is stored with the word. This pointer points to the first record of the definition in definition file. Pointers are also stored at the start of each record of the definition. These pointers link the records of the definition in the definition file. The last record of the defintion will always contain a null pointer, indicating that there are no more records belonging to that particular definition. The pointer values in both the words file and the definition file refer to record numbers in the definition file. The pointer stored with a word indicates which record of the definition file to go to for the start of the definition. The pointer in each definition record indicates the next record in the definition file that continues the definition of the given word.

This file organization is similar to the method used by the disk controller to maintian files on a disk. In our case the words file is analogous to the directory. The definition file could correspond to the sectors on the disk but there is no bit-map analogy, instead the records are chained together by means of pointers. These chained records are called a linked list.

That's enough about file organization. Let's move on to the way the program works. The program when running will ask for a word, search through the words file for the word and if the word is found will ask if you would like to see the definition. If the word is not found you will be allowed to enter a definition for the word. Once the definition is entered you will have a chance to check it before it is saved. The program continues to ask for new words until a simple carriage return is given. At that point it will ask if you are sure you want to quit the program. Finnally the files are closed and the program ends.

Final note:
This program could be used to keep track of any kind of list. Simply enter a unique keyword when asked for a word, then enter your data in place of the definition. Possible uses could be to keep a diary where the word entered could be the date. Also since the program is obviously lacking such features as output to a printer,

and a better editor, these improvements could be added to make this program into a simple data base program.
For the 'C' programmer's out there look in next month's newsletter for a c99 translation of this program. Happy computing!

```
100 ! VOCABUALRY BUILDER
110 ! A PUBLIC DOMAIN PROGRAM
120 ! THIS IS A SIMPLE DATA MANAGER PROGRAM.
130 ! BY MICHAEL SWIRIDENKO
140 ! FOR THE WPG. 99/4 USER'S GROUP. (C) MAY 1987.
150 ! PREPARE THE FILES.
160 CALL CLEAR :: DISPLAY AT(12,5):"VOCABUABY BUILDER"
170 DIM DQ$(16)
180 OPEN #1:"DSK1.WORDS",RELATIVE,INTERNAL,FIXED 28
190 IF EOF(1)THEN PRINT #1,REC 0:0
200 INPUT #1,REC 0:WCNT
210 OPEN #2:"DSK1.DEFENITION",INTERNAL,RELATIVE,FIXED 32
220 IF EOF(2)THEN PRINT #2,REC 0:0,0
230 INPUT #2,REC 0:DCNT,FREE
240 ! WORD KEEPER VOCABULARY EXPANDER..
250 CALL CLEAR
260 DISPLAY AT(1,5):"VOCABULARY BUILDER"
270 DISPLAY AT(5,1):"WORD: "
280 ACCEPT AT(5,7)SIZE(-20):W$
290 IF W$<>"" THEN 350
300 ! QUIT PROGRAM..
310 MSG$="QUIT? ARE YOU SURE? (Y/N)" :: GOSUB 720 :: IF NOT OK THEN 270
320 CALL CLEAR
330 CLOSE #1 :: CLOSE #2
340 END
350 MSG$="IS THIS CORRECT? (Y/N)" :: GOSUB 720 :: IF NOT OK THEN 270
360 ! SEARCHING FOR WORD!
370 FND=0
380 FOR I=1 TO WCNT
390 INPUT #1,REC I:WD$
400 WDL=LEN(WD$)
410 IF SEG$(WD$,7,WDL-6)=W$ THEN 440
420 NEXT I
430 DISPLAY AT(23,1):"WORD NOT FOUND" :: GOTO 550
440 FND=I :: DISPLAY AT(23,1):"WORD FOUND." :: MSG$="WANT DEFINITION? (Y/N)" :: GOSUB 720 :: DISPLAY AT(23,1):"" :: IF NOT OK THEN 270
450 DISPLAY AT(23,1):"":""
460 ! DISPLAY DEFINITION
470 DPOS=VAL(SEG$(WD$,1,4))
480 DN=VAL(SEG$(WD$,5,2))
490 FOR I=0 TO DN-1
500 INPUT #2,REC DPOS+I:DN$
510 DISPLAY AT(7+I,1):DN$
520 NEXT I
530 FOR I=7+DN TO 22 :: DISPLAY AT(I,1):"" :: NEXT I
540 MSG$="CHANGE DEFINITION? (Y/N)" :: GOSUB 720 :: IF
```

```
NOT OK THEN 270
550 ! ACCEPT NEW DEFINITION..
560 DISPLAY AT(24,1):"ENTER NEW DEFENITION!"
570 FOR I=7 TO 22
580 ACCEPT AT(I,1)SIZE(-28):DN$
590 DQ$(I-6)=DN$ :: IF DN$="" THEN 610
600 NEXT I
610 DLC=I-6+(I>1):: MSG$="IS THIS CORRECT? (Y/N)" ::
GOSUB 720 :: IF NOT OK THEN 550
620 DISPLAY AT(24,1):"SAVING NEW DEFINITION!"
630 IF FND>0 THEN 700
640 WCNT=WCNT+1 :: PRINT #1,REC 0:WCNT
650 WD$=STR$(DCNT+1)::
WD$=SEG$("0000"WD$,LEN(WD$)+1,4)&":"&$("00"STR$(DLC),LEN
(STR$(DLC))+1,2)W$
660 PRINT #1,REC WCNT:WD$
670 FOR I=1 TO DLC :: PRINT #2,REC DCNT+I:DQ$(I):: NEXT I
680 DCNT=DCNT+DLC :: PRINT #2,REC 0:DCNT,FREE
690 GOTO 270
700 DISPLAY AT(24,1):"CHANGING OLD DEFINITION"
710 FOR I=1 TO 500 :: NEXT I :: DISPLAY AT(24,1):"" ::
GOTO 270
720 DISPLAY AT(24,1)BEEP:MSG$
730 CALL KEY(0,K,S):: IF S<1 THEN 730
740 IF K<>78 AND K<>89 THEN 730
750 IF K=78 THEN OK=0 ELSE OK=-1
760 DISPLAY AT(24,1):"" :: RETURN
```

CURIOSTIES AND PASTIMES

This month's puzzle is called the colored hat problem.

Three men- A, B, and C- are each blindfolded and are told a green hat or a red hat will be placed on each of their heads. When the blinfolds are removed each of the men are told to raise a hand if they see a red hat and to leave the room if they know the color of their own hat.

Three red hats are put on the men's heads. All three men raise their hands when the blindfolds where removed. A few moments pass, then finally C, more astute than the others, leaves the room.

How did C deduce the color of his hat?

[NOTE: Theoretically this puzzle works the same with any number of persons where only red hats are used.]

Here is a word search puzzle for all of you who have been longing for one the past year. All you have to do is find the forty words that have to do with computer hardware and electronics in the following puzzle.

```
J E D G X T Z A Q K L L G B A D E L N P
N X O R Y J E U M S K O E I D L A T C O
```

```
X Z K J O M E I N I C G D N D E D O I D
K Q L R J L U B A D N I S A R L D Q R V
H A R D W A R E D M B C W R E A A T C I
O P R I N T E R D A U P D Y S T T P X W
D E C W W Y D P E R F R C N S C A T L V
K V C C T C X U R C F O A K A H B O G U
C I V M O T M E W M E B P C R N U L F L
O R F V H U K E H O R E A I E L S T O A
L D S U B D N Q D S M V C T S T B E L M
A K E Z P W D T T O E P I S I Y V H A I
H S P T Y O R R E R M C T Y S D N A T C
P I O Q A V A N O R E S O O T G O O S E
L D L D L G O B R F O T R J O O C K Y D
A V F I E M B H P U A J S Q R W I C R Y
K C P Y R Y Y G X D W Q F I J F L O C E
F A I S V C E L G W A Z X W G P I L C L
Y R L H X W K R E T F I H S E E S C E Z
I D F C K R O T I S N A R T L N R W H L
```

HARDWARE	LOGICPROBE
JOYSTICK	MODEM
KEYBOARD	ALPHALOCK
NAND	NOR
XOR	AND
OR	REGISTER
COUNTER	SHIFTER
LATCH	FLIPFLOP
BUFFER	DISKDRIVE
RAMDISK	PRINTER
CLOCK	CRYSTAL
CAPACITOR	TRANSITOR
RESISTOR	DIODE
GATE	ADDRESS
DATABUS	RELAY
SILICON	CMOS
ADDER	LED
BINARY	OCTAL
DECIMAL	HEX

Continued from bottom

```
A N K B B P R O A K C O L A H P L A A K
H M Y C L H L H F N C O L X P C Q I L C
P W Q A O A F B J K C O L A H P L A O O
L R Q J H L F G V K C O L A H P L A C L
A L G P A O A A L P H A L O C K K T K A
V H L H J C K H X M N R Z X P V T I Q H
K A C L K K Y V P O A L P H A L O C K P
K C O L A H P L A L Z H V V T U M X J L
A L P H A L O C K R A L P H A L O C K A
B X A L P H A L O C K K C O L A H P L A
```

The following is a test of skill and patience, and your dedication to your TI computer. A true TI'er would be able to find the thirty 'ALPHALOCK's, hidden below, in less than a minute. (Just joking) See how many you can find. Try timing yourself.

```
H J M A L P H A L O C K C Z I E F A W Y
J S G Y O S A K C O L A H P L A L S N P
F B M K C O L A H P L A Y R P P I S X A
S P E V T G F H U A K X V F H R O G M L
K C O L A H P L A M X K W A X K E A G P
W A L P H A L O C K C R L E P G L A F H
K X T O H O J C Z O D O K N X P L U A A
C K C O L A H P L A C C B E H P E O L L
O P N I O A O A G K O U W A H W S L P O
L B N W H L H G C L N O L A X G L A H C
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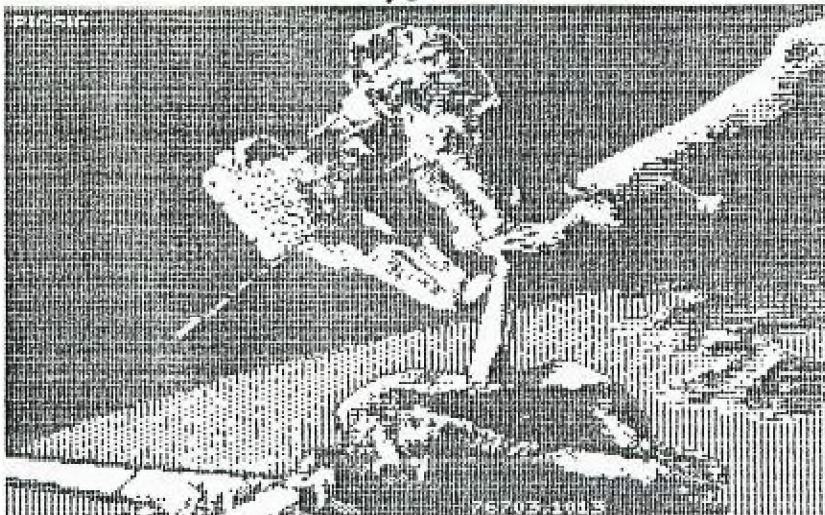
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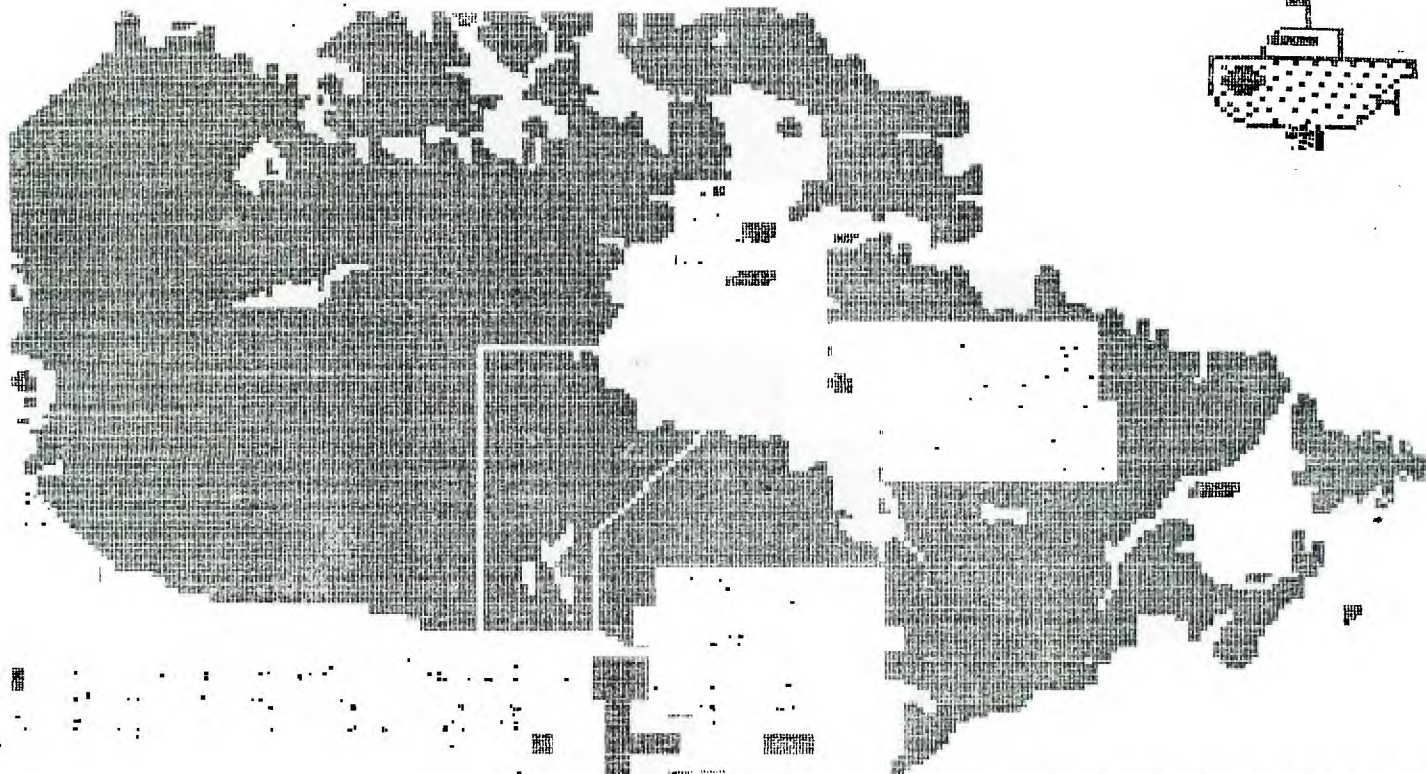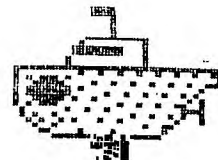
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