
ESHUG

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Focusing on the TI99/4A Home Computer

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Annual Family Dues	\$35.00
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TiSHUG Sydney Meeting

The April Meeting will start at
2.00 pm on the 3rd April
at Ryde Infants School,
Tucker Street, Ryde.

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Notice

MEMBERSHIP RENEWALS NOW DUE !
REFER TO MAILING LABEL

Editor's Comments

by Bob Relyea

The last meeting was not as well attended as it often is but there was a lively spirit prevailing. The meeting was interesting and we will see a continuation of some of the things started by Ross Mudie and Peter Schubert at the all day tutorial on Saturday. Hope to see you there. Keep those articles coming in!

JANUARY/FEBRUARY 1993

April is an important month for Tishug as the majority of our membership renewals become due. Despite the age of our computer and the recession, we are still a viable club, able to pay our way, and more importantly, still able to provide ongoing help and support for the TI. In this regard we have taken steps to secure a supply of consoles and motherboards, which will allow us to meet our commitments in the foreseeable future.

I am pleasantly surprised at the number of locally written articles waiting to be published in the TND. We have no shortage of talent in this club. At the May meeting we will draw on some of the talent and share it with other members. If you would like your name in print, write down your thoughts on some area of using the TI and send it off to Bob Relyea. Some of the most interesting articles are those which come from our everyday usage of this computer, rather than the contributions of far off Gurus. We all have our successes and our frustrations with the TI. Lets tell others what we do with our machine.

Recently at work, I have had occasion to use a psychological test with parents and children which drives me up the wall, because it takes at least half an hour to score. The problem lies in the fact that I have to enter 113 scores and sort them into complex categories. I decided that my trusty TI could do the job far more efficiently than I could, so I took my problem to Mike Slattery, and four hours later came away the proud possessor of a program on the TI which does everything I want in this area. I sat up that night and processed seven tests in 50 minutes. My work colleagues are envious that I have a tool to do this job so well. I decided that I would like to distribute this program to other Counsellors, and I thought that I would try to convert the TI extended basic to IBM GW Basic. This is where my problems really began. I am beginning to appreciate how good, TI extended basic really is. We take it for granted. If I can give but one example. In TI extended basic we use Display At, and Accept At. I had no idea how useful these commands are, until I tried to duplicate their use in GW Basic.

I can still find no way to duplicate their power on the screen on th IBM. I was also frustrated by the on screen editing in GW Basic. I could find no way to move backwards or forwards when editing lines of program. Suffice to say that I was really surprised at how good our extended basic really is.

I have also written a program to print out Labels for work. This saves me heaps of time as I regularly have to post material out to the same group of people. My trusty TI now prints out as many labels as I require, either for the whole group, or for an individual person. I am delighted with what it can do.

I use PR Base constantly to keep track of files and people. I have a directory of 450 people which I constantly update. It is coded to allow me to sort the data based on my relationship with the people. It works so well. I have print outs of all the useful information I use. I use PRBase in a variety of ways at work, for example, to keep track of tests and equipment, to record test results for children, and to keep track of those needing special educational provisions.

I suppose the point which has come home to me recently is that I can use my TI effectively because it can still be programmed to do what I want it to do. I will be surprised in a few years if the modern machines will accept locally written programs. We seem to be moving more and more towards a society where we are growing dependent on the handouts of Government, or large multinationals. Things are being constructed more cheaply, as units. Programming is growing more complex, as more and more graphics and music is included. Fewer and fewer people seem to be programming for their own usage. It is far easier to buy what you want or need straight off the shelf. Sure you pay big money for it, but look what it can do. The only problem is that we as individuals are losing our independence, our capacity to fend for ourselves. I suppose that I value my independence, and every time I am able to use my TI to do exactly as I want it to, I am reinforcing my belief that it is good for people to be independent of multinationals, salesmen, and to be able to continue to do things for themselves. The TI club continues to succeed because it is made up of individuals, who value independence and self reliance. Our TND is testimony to the ingenuity, talent, and determination of local club members. Lets keep on going. Help each other to grow stronger and more able to be independent in this modern computerised society. At the next meeting in May we will have a variety of activities for you to develop more skill or more knowledge with computers. See you there.

Dick Warburton

***** END OF ARTICLE *****

* From Barry Boone
Subject HFDC

The last revision of the HFDC was H11. There was an H12 briefly, but it was really buggy, and quickly pulled out of circulation. Is the H11 buggy? What was the last revision of the Myarc DM V ? Known H11 bugs are primarily with level 2 floppy I/O... level 2 writes will corrupt any non-program image file (which is why you cannot un-archive files to floppy connected to the HFDC (unless you are using a Geneve). H12 fixed that one, but introduced many other problems... The latest version of MDM5 is 1.40 for the 99/4A and 1.30 for Geneve. There is no difference between the two, except that 1.40 was intended to work with the FINAL version of MDOS.

* Hardware Standards
Cohen Gomez

Level C ----- Level B plus: RS232, double sided single density disk drive and controller (all controllers DO DSSD)

Note there is no level for a DS/DD (Myarc/CorComp/Atronic) disk controller upgrade. I think this is just as well. I always felt the TI-controller was the best of all, and that the DD of the other controllers did not really give that much except for a doubtful TI99/4A<-->IBM transfer and some increase in disk access (alas, along with a decrease in system reliability and compatibility)

I think the Myarc FDCC (floppy controller) is probably the best of the lot. Mine has always been reliable since I bought it in 1986. From a reliability stand point, the TI controller probably cannot be beaten. However, it has what I consider a clunker of a hardware interface. The CorComp just adds more and more complications to the TI99/4A mix. The CorComp card, depending on what version you might use, can be quite unreliable. The HFDC is basically a good hardware design, but the chip set Myarc used has some bugs. The bugs in the HFDC DSR do not help matters. The Percom card that I have is reliable, though know some were not. The Percom is basically a clone of a TI card built as for box that attaches to the console via a ribbon cable. I have both Myarc, the TI, the Percom, and one of the CorComp units. The HFDC sees the most use, because it is fast and I have it on my Geneve where it has been reliable. The Myarc FDCC sees action the rest of the time. It is reliable on both TI99/4A and Geneve systems. The TI, Percom, and CorComp cards are used when I need to run more than 2 systems, or when I need to check code for compatibility.

One annoying "feature" of the HFDC is that it cannot read all disks made by the other controllers. Early versions of MDOS not meant for use with the HFDC and pre-dating the HFDC would write incompatible formats. I have a stack of 720K disks written with my FDCC(-80) that cannot be read by the HFDC. By far the worst offender is CC, which writes a single-density format that the HFDC cannot read properly. The data structures for the FDCC (80) and HFDC 720K are one and the same and the data structures for all single-density disks among the controllers are the same. However, as Barry Boone described and I have confirmed, these HFDC unreadable formats are because there are not enough gap bytes after the disk index. This causes problems with the HFDC data separator circuit (which on several cards is not up to spec) but even when that is fixed, does not solve the compatibility problems.

However, I am drifting from the topic, although I guess you could say that if CorComp had followed the standards set down for formatting single density, I would be able to read with the HFDC this disk I was given a couple weeks ago. The Level C standards are minimal standards for that level. Nowhere is a specific brand of controller specified. Because all controllers can handle non-CorComp single density, that is what was specified. These hardware levels are meant to help software writers target their products to users. Specifying levels that support 360K (DSDD) or 720K (DSDD-80) disks would really narrow the market at that level. Most users have TI controllers, and those are what are most often found second-hand.

Level D ----- Level C plus: 128K or greater CPU RAM bankable in at-

Why are the Foundation and Morning star 128K cards not supported? The Foundation and Morningstar cards fall under the category "Etc." If any person can provide information on how to use them (the Foundation can be upgraded to work like a Myarc 128K or 512K, and the Morningstar can work like RAMBO), there will be no problem with supporting them. The purpose is not to exclude anyone if it can be helped.

* Computer Peripherals
by Cohen GOMEZ

Who is the best in computer peripherals? I used to go with the conventional wisdom from the PC world, namely, I always tried to use-

Teac for disk drives (TI used MPI and later Shugart full height drives, I think they also planned on Shugart half height DS/DD drives for their DD controller?).

Epson for printers (the TI impact 99/4 printer was an Epson, same also for the IBM PC OEM'ed printer)

Monitor- TI originally used Zenith (13"), then Japanese monitors for the scaled-down 10" size that we all know. Best monitor I have seen so far was a Zenith 14" composite+RGB 40-column monitor that somebody showed me. The Magnavox 8CM515 (or a similar combination of numbers, you know what I am talking about, the one Tex Comp sold until not too long ago) is of marginal display quality, I think, although its good price made it very popular.

Cassette recorder- TI used GE.

Hard drives- usual name is Seagate, I have little experience here.

After discussing (and trying) some other equipment from other people's systems, I think that Panasonic should be rated at the top. I was very impressed with their floppy drives and I heard only good words about their printers. Their audio systems are also excellent so their cassette tape players are likely to be good. (I have used for a long time a Magnavox cassette player; for your own sanity I would strongly recommend you do not buy Magnavox even if it is \$10 cheaper!) BTW, Magnavox is the North American brand name of the European Philips. I do not know whether or not the products carrying the European brand name are better.

For future reference and for the sake of those who seek peripherals, it would be interesting to relay your experience with peripherals.

* TI GPL Manual
by David Nieters
University of Minnesota

I have seen articles inquiring to the whereabouts of the TI GPL Manual. I have it available via anonymous FTP from nstar.cis.umn.edu (128.101.65.50). It is in the subdirectory GPLMAN. It is in postscript(tm) format along with the LaTeX sources if anybody wants to run their own version of LaTeX on it. I have been working on it lately, getting the figures and tables looking pretty. There is still a little work that needs to be done at the end of the manual, but since people want it, I thought I would put up what I have. It is 161 pages long. I will put up a posting when I am happy with the final version. There is some text missing in the beginning of Chapter 2. If anyone has the missing text, could you please send it to me and I will include it in the manual.

I also have the disassembled console ROMs (back in the root directory of anonymous FTP). Someone was asking is anyone had that available. In addition, I also have disassembled code for the disk controller, the RS232 card and the mini-memory cartridge. Sorry, I do not have any disassembled GPL GROM code. I have commented these as best as I could. I ask anyone who gets them to let me know of any errors in my comments or anything that may be useful to add. Same goes for the GPL manual.

* Real Time Clocks
by Cohen Gomez

I am aware of the following three real time clocks:

1. CorComp clock, as found on Triple Tech card (and I think also on a stand-alone clock side card peripheral, though I have never seen one). It opens from TI BASIC or Extended BASIC as a file name "CLOCK".

2. MBP clock, as found on the MBP clock/analog-digital converter. It can be read/written to from Extended BASIC using CALL LOAD commands.

3. The HFDC clock, opens from TI BASIC/Extended BASIC as a file name "TIME". Does it use the same clock chip as one of the above? I understand that this is a lousy clock. It does not keep the time correctly (and also has no battery backup). One has to enter the time at each power-up process which is really annoying. Has anybody devised a battery power backup for this clock?

Unless I get it wrong for some reason, it seems to me that all the above clocks can simultaneously co-exist in the PEBox and be accessed without confusion, right? At least from TI BASIC, that is...

There is also the P-GRAM card clock option. Hardware-wise this is an MBP clock, but there is a built-in software emulation of the CorComp clock in TI BASIC (i.e., programs that access the CorComp clock chip directly will not recognize the P-GRAM clock, only TI BASIC commands will).

Will anybody contribute information on other clocks? We heard about the BWG controller having a clock and it seems like this is a relatively simple thing to put on most any card. Though I have not heard of any inside the console, except for a cheap \$2 LCD digital clock that you can stick on the console. That is like a friend's math co-processor for the TI99/4A, which was a \$5 solar powered little calculator that he attached to the top of his console.

* Subject: TI 99/4 Emulator for PCs
by Tim Stark
837 North Van Dorn St Portal
Alexandria, Virginia
(703) 702-4078

I have TI99/4 emulator here for PC computers. However, it is an alpha version that is under development. You may develop it more for final version. A few years ago, someone sent it to me and asked me to put it into internet. I am sorry that I forget to post it to internet a long time ago. Are you interested in that? I will post it to this newsgroup because it is a very small zip file (61K file). Or I will ftp it to anonymous ftp. Does anyone have good anonymous ftp for TI99 uploads? Please respond to me as soon as possible. Thank you!

This zip file might contain images of ROM/GROMs. Are they still copyrighted material? If so, I will remove them before I post this zip file. However, I have seen some archive files which contain images of ROMs on some BBS for TI99/4A computers. I did not understand why.

* MICROpendium

But I recently learnt that MICROpendium wants to raise its subscription price to \$35 per 12 monthly issues. That is a lot of money for what is essentially a commercial newsletter. It is very important to have MICROpendium, but how many people will pay this much? The situation is certainly problematic, as they raise prices due to a diminishing subscription base and then will likely lose even more readers. Other sources of income include, I think, their Public Domain disks sold for \$4(?) each and the percentage they collect from buyers and sellers of used computer equipment that use their BBS (this is mostly IBM and Mac stuff, relatively little TI99/4A stuff I am told).

The golden years of MICROpendium were, of course, 1986-1988 (+/- 1). It is amazing that they have been able to stay in business for 9 years now. But they are having difficulties, of course.

It is no secret that one of the main supporters of MICROpendium was Tex-Comp with their huge multi-page ads. But a recent catalogue I have seen from them reveals a sad truth (at least this is my interpretation)- they only offer a very limited selection of (perhaps 20-25) cartridges at a close-out price, generic supplies like printers, modems, monitors, generic diskettes with their FreeWare for \$4.95 each and T-shirts. Were they really interested in staying in the TI99/4A business they could carry much new software and hardware, but it seems to me they are doing the same thing as Triton.

Will Tex-Comp disappear soon? And how long will MICROpendium be published still?

***** END OF ARTICLE *****

CONVERTING CALL SOUND TO MIDI SNF

By Jim Peterson

In his documentation for Midi Master 99, Mike Maksimik states that it is easy to convert CALL SOUND statements to MIDI notes - in other words, to convert TI-99/4A Basic music to MIDI SNF format. He gives a suggestion of a subprogram to use for this purpose. Unfortunately, in actual practice it is far from easy - at least I have not found it easy, and I have ten years of experience in programming TI Basic.

Many programmers have written music for the TI, and each one tended to use his own method. Some did it the hard way, writing a CALL SOUND for each note. Others have used a single CALL SOUND, which makes it easier, but have variously placed the frequencies in an array, or read them in from DATA, or assigned them to mnemonic variables, etc., etc. Some have used positive durations, others used negative durations with delay loops. Some have used the noise generator for bass notes and some have used all kinds of programming tricks for special effects.

Therefore, there can be no standard method of conversion. In general, I have found that four out of five music programs contain complexities which make them impractical or impossible to convert. Most of the rest have required some modification or editing of either the program or the conversion routine. Even then, the results have not always been satisfactory.

One might ask, why bother with such conversions? The programmer had to pare down the XBasic music to only 3 voices, due to the limitations of the TI. Why not key in the SNF file from the original score, using all the voices that the writer intended? That is a good question - but, I cannot resist a programming challenge, so I just had to try!

It is fairly easy, in most cases, if the programmer has used my favorite method, putting the frequencies into an array and numbering the durations from one up. In that case, near the beginning of the program you will find something like this -

```
170 DIM N(36):: F=110 :: FOR J=1 TO 36 :: N(J)=INT(F*1.0
59463094 (J-1)+.5):: NEXT J:: N(0)=40000 :: FOR R=1 TO 2
```

And the programming will look like this -

```
180 GOSUB 290 :: T=4 :: A=18 :: B=15 :: C=6 :: GOSUB 290
:: T=2 :: A=23 :: GOSUB 290 :: A=27 :: GOSUB 290
```

- where T is the duration, multiplied by a factor in the CALL SOUND, and A, B and C are the subscript numbers of the array holding the frequencies, after each note going to a single CALL SOUND something like this -

```
300 CALL SOUND(T*100,N(A),VI,N(B),V2,N(C),V3):: RETURN
```

The following routine will convert such music, if the programmer has not done something unusual.

```
1 DATA OC,OC#,OD,OE,OE,OF,OF#,OG,OA,OA,OB,OB
2 DATA IC,IC#,ID,IE,IE,IF,IF#,IG,IA,IA,IB,IB
3 DATA 2C,2C#,2D,2E,2E,2F,2F#,2G,2A,2A,2B,2B
4 DATA 3C,3C#,3D,3E,3E,3F,3F#,3G,3A,3A,3B,3B
5 DATA 4C,4C#,4D,4E,4E,4F,4F#,4G,4A,4A,4B,4B,5C,END
6 DATA S,E,.E,Q,5,.Q,..Q,H,9,10,11,.H,13,..H,15,W,END
7 DIM @N$(70),@D$(16)
8 READ @ $ :: IF @ $ < "END" THEN @ =@+1 :: @N$(@)=@ $ :: GOT
0 8 ELSE @ =0
9 READ @ $ :: IF @ $ < "END" THEN @ =@+1 :: @D$(@)=@ $ :: GOT
0 9
10 DISPLAY AT(3,1)ERASE ALL:"SNF filename? DSK" :: ACCEP
T AT(3,18):@F $ :: OPEN #1:"DSK"@F $,OUTPUT
11 DISPLAY AT(5,1):"Music name?" :: ACCEPT AT(6,1):@M $
: DISPLAY AT(8,1):"Number of voices?" :: ACCEPT AT(8,19)
:@V $
12 PRINT #1:"("&@M $&"),"&@V $&","1" :: DISPLAY AT(10,1):"D
elay?" :: ACCEPT AT(10,8):@DL $ :: PRINT #1:"#DELAY="&@DL
$
13 !PRINT #1:"1,"&@N$(A)&","&@D$(T):"2,"&@N$(B)&","&@D$(
T):"3,"&@N$(C)&","&@D$(T):: RETURN
14 !PRINT #1:"4,"&@N$(A)&","&@D$(T):"5,"&@N$(B)&","&@D$(
T):"6,"&@N$(C)&","&@D$(T):: RETURN
```

Key that in, save it by SAVE DSK1.MERGE, MERGE. Load the XBasic music program, make sure it starts with a line number higher than 14, and merge in that routine by MERGE DSK1.MERGE. Find the line number containing the CALL SOUND. Bring line 13 to the screen, Enter it, use FCTN 8 to bring it back, replace the 13 with that line number, delete the ! and Enter.

The next step is optional, but try it. Delete the :: RETURN from the line you just moved. Then bring line 14 to the screen and use the same method to give it a line number one higher than the CALL SOUND line. The conversion will now write an SNF file for 6 voices. There will be only 3 different notes, but you could change the N\$(A) to N\$(A+12) to raise it an octave, and assign different instruments.

Of course, if the program uses variables other than T, A, B and C, you will have to change them in those two lines.

Near the beginning of the program you will probably find a FOR J=1 TO 3 (or of course it might be an R or X or whatever) indicating how many times the music is to be played through. You had best change to 1 TO 1; you can duplicate the SNF file with the Copy function of Funnelweb after you get it debugged. Go through the program and find the matching NEXT J or whatever. Right after it put PRINT #1:"END" :: STOP

Now RUN it. You had best answer the delay? prompt with 1000 or more, because it will probably be giving you sixteenth notes that should be quarter notes. You can adjust that later. Compile the SNF file. You may get some errors because the note length is a number instead of an acceptable symbol. See the line 6 DATA. You will have to rewrite those as two notes with the second one tied. For instance, a 10 would be replaced with an H and another of the same note with an -E.

When you have made those corrections, and adjusted the delay, if the music does not sound right, it is best to give up. The programmer has done something that would probably be difficult to figure out and duplicate.

If the programmer has used individual CALL SOUNDS, or used mnemonic variables, or read in the frequencies from DATA, conversion may still be possible but there are more apt to be insurmountable problems. Mike suggests converting the CALL SOUNDS to a user written subprogram named SOUNE. This is not necessary, because a user-written subprogram having the same name as a built-in subprogram is recognized instead of the built-in subprogram.

However, it is essential that every CALL SOUND in the program has the same number of voices, because user-written subprograms must have a fixed number of parameters. It is also essential that the duration values passed to the subprogram are numbered from 1 upward, or that they are divided down to those values in the sub-program.

This is the mergeable routine I have used -

```

30000 SUB SOUND(T,A,X,B,Y,C,Z):: IF W=1 THEN 30030 ELSE
W=1
30001 S$="110 117 123 131 139 147 156 165 175 185 196
208 220 233 247 262 277 294 311 330 349 370 392 415 440
466"
30002 S$=S$&" 494 523 554 587 622 659 698 740 784 831
880 932 988 1047 1109 1175 1245 1319 1397 14 80 1568
1661 1760 1864"
30003 DATA OC,OC#,OD,OE@,OE,OF,OF#,OG,OA@,OA,OB@,OB
30004 DATA 1C,1C#,1D,1E@,1E,1F,1F#,1G,1A@,1A,1B@,1B
30005 DATA 2C,2C#,2D,2E@,2E,2F,2F#,2G,2A@,2A,2B@,2B
30006 DATA 3C,3C#,3D,3E@,3E,3F,3F#,3G,3A@,3A,3B@,3B
30007 DATA 4C,4C#,4D,4E@,4E,4F,4F#,4G,4A@,4A,4B@,4B,5C,E
ND
30008 DATA S,E,.E,Q,5,.Q,..Q,H,9,10,11,.H,13,..H,15,W,17
,18,19,20,21,22,23,.W,END
30010 RESTORE 30003 :: DIM N$(350),D$(16):: Y=-4 :: N$(0
)="R"
30020 READ X$ :: IF X$<>"END" THEN Y=Y+5 :: N$(Y)=X$ ::
GOTO 30020 ELSE Y=0
30025 READ X$ :: IF X$<>"END" THEN Y=Y+1 :: D$(Y)=X$ ::
GOTO 30025
30030 D=POS(S$,STR$(A),1):: E=POS(S$,STR$(B),1):: F=POS(
S$,STR$(C),1)
30040 PRINT #1:"1,"&N$(D)&","&D$(T):"2,"&N$(E)&","&D$(T)
:"3,"&N$(F)&","&D$(T)
30050 PRINT "1,"&N$(D)&","&D$(T):"2,"&N$(E)&","&D$(T):"3
,"&N$(F)&","&D$(T):: SUBEND

```

The string in lines 30001 and 30002 is a look-up table to match the frequencies to the SNF codes. Therefore the frequencies passed to the subprogram must be exactly right. This method is slow, so I have included a screen display to verify that valid codes are being generated.

If the program reads frequencies from DATA, note that after the first DATA is read and the first CALL SOUND is executed, the subprogram RESTOREs and reads its own DATA. You must therefore insert a line after 30025 to RESTORE the second DATA line in the main program. If you want to change the octave of a voice in 30040, add or subtract 60, such as N\$(A+60).

The look-up table string cannot be long enough to contain the highest notes that some programmers might use. The following modification takes care of that problem, and also runs much faster, but does not permit changing octaves. Delete lines 30001 through 30007, and 30010 and 30020, of the above routine, and insert -

```

30001 DATA C,C#,D,E@,E,F,F#,G,A@,A,B@,B
30002 DIM C$(12),N$(3000),D$(24):: RESTORE 30001 :: FOR
J=1 TO 12 :: READ C$(J):: NEXT J
30003 F=110 :: FOR J=1 TO 58 :: X=INT(F*1.059463094 (J-1
)+.5):: Y=Y-(Z=12):: Z=Z+1+(Z=12)*12 :: N$(X)=STR$(Y)&C$
(Z):: NEXT J :: N$(0)="R"

```

That version will crash if the programmer has used an inaudible high value, such as 40000, for a rest. In that case, change the 30030 in line 30000 to 30035 and add a line 30035 IF A=40000 THEN A=0 and similar lines for the other voices.

But, I cannot begin to tell you about all the modifications you may have to make to a program or a program in order to overcome its particular problems. If you do not have some programming skill, I recommend you do not even try. Sorry, Mike, it is NOT easy!

***** END OF ARTICLE *****

TI BITS * NUMBER 23

By Jim Swedlow

[This article originally appeared in the User Group of Orange County, California ROM]

WORLD WIDE TOP TEN

Personal Computing recently listed the top ten computers in world wide sales from 1978 to 1988. Guess what?

Commodore 64	7,280,000
IBM PC/XT	4,577,000
Apple II family	4,487,000
Sharp 12/13/15/16 series	4,055,000
Commodore C128	4,003,000
Commodore Vic 20	2,246,000
Apple Mac Family	2,063,000
TI 99 4A	2,053,000
Sinclair ZX 80/81	1,790,000
Tandy TRS 80	1,754,000

BTW, the top five dot matrix printers (1988 sales) were:

Apple ImageWriter II	97,300
Epson LX 800	48,650
Panasonic 1080i	48,650
Star NX 1000	41,700
Panasonic 1090i	41,700

TURBO COPY

If you have a TI disk controller, this is a must-have program. It is the fastest track copier available. It does not, however, work with Myarc or CorComp disk controller cards.

Turbo Copy has a number of strengths. It formats as it copies, cutting total time drastically. Also, it can make two copies from one original (if you have a three drive system). Here is how you do it:

- * Put your master in drive 1 and blank disks in drives 2 and 3.
- * From the main Turbo menu, press 1 for Copies and then press the space bar.
- * Press ENTER to accept 1 as the MASTER DRIVE.
- * Change the COPY DRIVE to t (lower or upper case is OK).
- * Next press ENTER twice more. Do not worry that the FORMAT drive is only 2, Turbo Copy will format both target disks. Also, leave FORMAT as Y (for Yes).

You can now start copying by pressing FCTN 5 (or BEGIN). If you just want to copy from drive one to drive two, press 1 for copies and then FCTN 5.

It is always a good idea to write protect your source or master disk before copying. Nothing should happen but it is inexpensive insurance (for example, some people will not name have put the source disk in the target drive and destroyed it — not me, of course!!).

The only known bug in Turbo copy is that it incorrectly formats double sided disks. It sets a byte on sector zero incorrectly so that the disk looks like it is single sided when DM1000 or other programs copy it.

Do not use Turbo Copy to format disks, but DO use it to copy them.

THE TI LIVES!

Well here we are on the verge of a the 90's. Not a new decade - that does not start until 1991 just as the twenty first century does not start until 2001 (and you wondered why the Arthur C. Clark used that year for his classic movie).

Anyway, who would of thought? TI abandoned us years ago and we are still viable. New and better software and hardware continues to be available. No one is getting rich supporting the 4A and we loose vendors from time to time, but the core is still there. Amazing.

Here are my suggestions for keeping the 4A alive:

1. Support your user group. If you are a member, come to meetings and participate. If you are not, find one and join, even if only by mail. Perhaps you could do a demo at a meeting or write something for the newsletter. Do something because the user groups are the life support system of any computer.
2. Support 4A vendors. If you want to make sure that someone provides software and hardware for the 4A, buy from them.
3. Support freeware authors. They are still producing some of the best software out there (BOOT, Funnelweb, etc.). But unless you let them know (in words and dollars) that you appreciate their work, they stop writing new stuff.
4. Help someone who has a 4A. There are tens of thousands (hundred of thousands?) of 4A's in closets and garages. Helping someone use their computer helps the 4A community survive.

Enjoy.

***** END OF ARTICLE *****

HIDDEN CHARACTERS

by STEVE PATTERSON - NEW HORIZONS

Hidden characters is a term that I have given for the use of characters in a filename that are unable to be seen on most disk catalogs. These types of characters can be used in both programs and files but there is a huge difference. With files, if you copy the program with an XB file copier such as my 'COPIER' then you can use any character ever imagined. For program type HC I have only found one to this day, which is ASCII 127 or FCTN 'V'. This is the only character that is hidden and has a key-in. You can use this character at the end of a filename to make it hard for others to run the program because they cannot figure out how to spell the filename because they do not notice the last hidden character. Of course you can use more than one and they do not have to be at the end. You could put one in the middle of the filename or you could let the entire filename be character 127. But having it at the end makes it a lot less noticeable.

Now how do you use ASCII 127 and possibly ASCII 1-29 in a filename for a file. This is where you will have to have some XBasic programming knowledge. You have to use either my program mentioned above or one of your own which you can write from scratch. Basically how to get any character at the end of a filename is to open that file in 'XB' then open a new file with a couple of Hidden Characters at the end of the filename. Then read each record of the file and save it to the new file. So you have actually copied the file itself and in the process you have added several invisible or Hidden Characters at the end of the filename. With the possibility of any char from 1 to 29, only you know the characters at the end. So, say you have a filename like: "DSK1.LIST" you can change that normal and easy to read file into the almost impossible to open file: "DISK1.LIST"&CHR\$(2)&CHR\$(25). This portion will place an ASCII Char #2 right after the 'T' in the name. It will not be seen on most catalogs but you will know what it is because you wrote the two chars down somewhere safe. One bad thing about this is that later, you cannot load this file into any program without changing it back to the normal way or by going in and changing the open statements in the program so that the Hidden Characters are in the filename. So you would not want to place Hidden Characters in a filename that is updated every day. Only on certain files that you only want to see and that will not be updated often, would this be of any use.

The reason I keep saying that most cataloguers will not be able to read the end characters is because I wrote one that can detect when there is a character in the filename that you would not normally see. For those who are not clear on the type of program that will add these Hidden Characters to a filename, read on.

```
100 OPEN #1:"DSK1.LIST",INPUT,DISPLAY,VARIABLE 80
110 OPEN #2:"DSK1.LIST"&CHR$(4)&CHR$(16)&CHR$(23),
    OUTPUT,DISPLAY,VARIABLE 80
120 IF EOP(1) THEN 160
130 LINPUT #1:A$
140 PRINT #2:A$
150 GOTO 120
160 CLOSE #1
170 CLOSE #2
180 END
```

The program above will give you a copy of the file LIST with three Hidden Characters at the end of the file. These characters being ASCII 4,16,23. Hope you find this new and experimental process of locking up files of some use and of some help in keeping away the unwanted and un-needed.

Retyped for TEXPAC BBS by Alistair Leslie of TISHUG.

***** END OF ARTICLE *****

PROGRAMMING MUSIC THE EASY WAY

PART 5 AND FINAL

(SEE TND NOV.92 FOR PART 4)

by Jim Peterson

In previous installments I have shown you how to program music by an easy method which requires you to specify a duration or a frequency only when it changes from one note to the next. Now, here is an even easier method - auto-chording.

With this method, you do not have to key in the accompaniment - you just specify the chord and GOSUB to the proper line to play the type of chord.

Almost all sheet music has guitar chords printed above the upper staff - those little 6x4 grids with black dots on them. And those guitar chords are always labeled with the name of the chord they represent.

The most common chord is a major chord, represented by a letter - A, C or whatever, or a letter followed by a flat or sharp sign. For those, use GOSUB 1000. The second most common chord is the 7th chord, which has the letter followed by a 7, such as C7. For those, GOSUB 1100.

You might come across a minor chord, denoted by a small m after the letter, such as Cm. In that case, GOSUB 1200. And for a minor 7th, such as Cm7, GOSUB 1300. There are many more complex chords, but I have not tried to allow for them all in this easy method. If you come to one of them, just try playing on through with the previous chord - it will usually sound alright.

To program music in this way, use the scale that I showed you in Part 1, but you will probably have to set the starting frequency considerably higher than 110. Merge in one or the other of the following routines, then program the music just as I showed you before, but only A and B. Give A the number for the melody and B the number for the chord, then GOSUB to the proper line number for that type of chord. If the next note does not have a guitar chord above it, it is the same chord so you do not have to give B a value again, just GOSUB to the same line number.

Now, here is the first routine, to play simple harmony. Let me give you a tip to save you some time. When you are keying in a series of program lines which are all nearly the same, key in the first one, Enter it, then use FCTN 8 to bring it back to the screen. Use the editing keys to change the line number and make other necessary changes, Enter it, use FCTN 8 to bring it back, etc.

```
110 D=30 :: S=1 :: V1=1 :: V2=9 :: V3=9
1000 X=X+1+(X=4)*4 :: ON X GOSUB 1010,1020,1030,1040 ::
RETURN
1010 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B),V2,N
(B)/1.585,V3):: NEXT J :: RETURN
1020 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B),V2,N
(B)/1.334,V3):: NEXT J :: RETURN
1030 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B),V2,N
(B)/2,V3):: NEXT J :: RETURN
1040 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.58
5,V2,N(B)/1.334,V3):: NEXT J :: RETURN
1100 X=X+1+(X=9)*4 :: ON X GOSUB 1110,1120,1130,1140 ::
RETURN
1110 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.49
7,V2,N(B)/1.585,V3):: NEXT J :: RETURN
1120 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.49
7,V2,N(B)/1.334,V3):: NEXT J :: RETURN
1130 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.49
7,V2,N(B)/2,V3):: NEXT J :: RETURN
1140 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.58
5,V2,N(B)/1.334,V3):: NEXT J :: RETURN
1200 X=X+1+(X=4)*4 :: ON X GOSUB 1210,1220,1230,1240 ::
--RETURN
```

```
1210 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B),V2,N
(B)/1.679,V3):: NEXT J :: RETURN
1220 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B),V2,N
(B)/1.334,V3):: NEXT J :: RETURN
1230 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B),V2,N
(B)/2,V3):: NEXT J :: RETURN
1240 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.67
9,V2,N(B)/1.334,V3):: NEXT J :: RETURN
1300 X=X+1+(X=4)*4 :: ON X GOSUB 1310,1320,1330,1340 ::
RETURN
1310 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.49
7,V2,N(B)/1.679,V3):: NEXT J :: RETURN
1320 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.49
7,V2,N(B)/1.334,V3):: NEXT J :: RETURN
1330 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.49
7,V2,N(B)/2,V3):: NEXT J :: RETURN
1340 FOR J=1 TO T*D :: CALL SOUND(-999,N(A),V1,N(B)/1.67
9,V2,N(B)/1.334,V3):: NEXT J :: RETURN
```

That routine will play straight 3-part harmony, but I like this one better, although it does not work well with some pieces.

```
110 D=30 :: S=1 :: V1=1 :: V2=5 :: V3=7
1000 FOR J=1 TO T :: X=X+1+(X=4)*4 :: ON X GOSUB 1010,10
20,1030,1040 :: GOSUB 2000 :: NEXT J :: RETURN
1010 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B),V3):: RET
URN
1020 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.585,V3)
:: RETURN
1030 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.334,V3)
:: RETURN
1040 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/2,V3):: R
ETURN
1100 FOR J=1 TO T :: X=X+1+(X=4)*4 :: ON X GOSUB 1110,11
20,1130,1140 :: GOSUB 2000 :: NEXT J :: RETURN
1110 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B),V3):: RET
URN
1120 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.585,V3)
:: RETURN
1130 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.334,V3)
:: RETURN
1140 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.497,V3)
:: RETURN
1200 FOR J=1 TO T :: X=X+1+(X=4)*4 :: ON X GOSUB 1110,11
20,1130,1140 :: GOSUB 2000 :: NEXT J :: RETURN
1210 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B),V3):: RET
URN
1220 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.679,V3)
:: RETURN
1230 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.334,V3)
:: RETURN
1240 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/2,V3):: R
ETURN
1300 FOR J=1 TO T :: X=X+1+(X=4)*4 :: ON X GOSUB 1110,11
20,1130,1140 :: GOSUB 2000 :: NEXT J :: RETURN
1310 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B),V3):: RET
URN
1320 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.679,V3)
:: RETURN
1330 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.334,V3)
:: RETURN
1340 CALL SOUND(-999,N(A),V1,N(A)*1.01,V1,N(B)/1.497,V3)
:: RETURN
2000 FOR Y=1 TO D :: NEXT Y :: RETURN
```

Both of those routines cycle through four inversions of the chord, to avoid a monotonous drone.

There are many ways to vary those routines. Just for instance, right after each N(B) put *2 to raise the harmony above the melody. Also try *4. Or alternate *2 and *4. Experiment! Have fun!

***** END OF ARTICLE *****

**TI SHUG SOFTWARE
APRIL, 1993**

by Larry Saunders

This is the fourth part of a complete series of the best of the TI games. The loader is a RAM style loader that is very user friendly. To change colour, PRESS V, to save colour choice PRESS FCIN 5, FCIN 9, Space Bar.

U016

Tips Manipulator program will sort, catalog, print, create a file, and modify TIPS files from existing TIPS file. Great for putting the most useful TIPS pictures into a couple or a single file. It will also rename a file or delete a file or add to a file.

Used= 338 Free=20

APAT	91 I128	CPAT	105 I128
DOCS	55 d 80	LOAD	31*Prog
MANIP2*1	54*i254	README!	2 d 80

G017

ET AT SEA is a game for the younger set.

FISH a fishing game for all ages.

SUPER GOLF up-to-date the best golf game on the TI-994A.

Backgammon, this version is the best version on the TI.

Used= 326 Free=32

A	10*I192	B	10*I192
CHARA1	9 Prog	ET@SEA1	33 Prog
ET@SEA2	33 Prog	ET@SEA3	12*Prog
ET@SEA4	25*Prog	FISH	33*Prog
FISI	33*Prog	FISJ	3*Prog
LOAD	5 Prog	LOAD/GOLF	4*Prog
ROOT	28 Prog	SUPERGOLF	40*Prog
XBACK	46 Prog	XLAOD	2 Prog

ATO18

The second of a series of TI-Artist fonts that have never been released before. This series contains some of the fonts that I used in making the banners for the TI Fair.

Used= 351 Free=7

FAT_F	50 d 80	FROZEN_F	34 d 80
HOLLOW2_F	33 d 80	HOLLOW_F	90 d 80
LBLOCK_F	33 d 80	MACBETH_F	33 d 80
NINETY_F	63 d 80	OFFBEAT_F	8 d 80
PCSET1_F	7 d 80		

PO19

A disk of Page Pro pictures, all of these pictures are made or scanned in Australia.

Used= 358 Free=0

BI-PLANE	28 I 13	BIRDBATH	3 I 13
BULLDOZE	28 I 13	HOTROD1	28 I 13
LEM	28 I 13	LOOK	2 I 13
M/EARTH	28 I 13	MATCHES	3 I 13
MRRYXMAS	6 I 13	MRYXMAS2	6 I 13
NEWYEAR	7 I 13	PAGODA	2 I 13
PICT2	19 I 13	PIRATE	28 I 13
POINTER	2 I 13	RURAL	28 I 13
SCISSORS	2 I 13	SCREW1	6 I 13
SCREW2	6 I 13	TAJMAH	28 I 13
TANK-SS	28 I 13	TRAIN	28 I 13
TRUCK	14 I 13		

IN May 1993 I will be releasing the first part of Alf's pictures/cards that were at the TI-Fair. If you have seen them at the fair you would know that they are by far the best put together (ever) on the TI. Most of the pictures are very Australian.

***** END OF ARTICLE *****

**TI SHUG SOFTWARE
MAY, 1993**

by Larry Saunders

The software file is always put up on the BBS at about one month before the meeting. It is listed as Bits&Bites 1 or 2 One file will be for the next meeting and the other will be the meeting after, Bits&Bites 3 and Adventure are used for items of interest, if I have time to type them up.

This is the first part of 4 diskettes of Page Pro Templates (Cards) scanned and designed by Alf Ruggeri for the TI-Fair last year. All cards are archived separately. The Archiver is supplied on all 4 disks along with ROOT.

PP020

ARC = Archiver
Card1 to Card6- all Christmas cards
ED/AS = Disk base Editor Assembler program that will boot by the ROOT loader on the disk and is ideal for running from any RAM drive.

Used= 358 Free= 0

ARC	33 Prog	CARD1	36*I128
CARD2	48*I128	CARD3	44*I128
CARD4	21*I128	CARD5	45*I128
CARD6	48*I128	ED/AS	33 Prog
LOAD	5 Prog	READ*ME	17 d 80
ROOT	28 Prog		

PP021

ARC = Archiver, for de-archiving cards.
Cards7 to Cards12 = Christmas cards.

Used= 354 Free= 4

ARC	33 Prog	CARD10	31*I128
CARD11	34*I128	CARD12	33*I128
CARD7	49*I128	CARDS	38*I128
CARD9	48*I128	ED/AS	33 Prog
LINES-DEMO	5*Prog	LOAD	5 Prog
READ*ME	17 d 80	ROOT	28 Prog

G022

Games disk- The Attack. A fast shooting-type game where you try not to get caught by a large type of bug. The bugs are made up from 4 smaller pieces that hatch from eggs during the game.

Freddy- A maze type game where you have to find the Exit up the top of the maze. Some tunnels going up will lead to a dead end and cost you time and energy. The Rats, Ghost, Bats, will shorten your life.

Tilo- A board game that I like to play and it takes time to master.

Video Chess. A classic game, same as the Module, but loads from disk.

Yahtzee. A classic game, for one or two players, has several ways of playing it.

Used= 356 Free= 2

ATTACKXB	39 Prog	FREDDY1XB	39 Prog
FREDDY2XB	35 Prog	LOAD	5 Prog
ROOT	28 Prog	TILO	43 Prog
TILO/LOAD	2 Prog	VCHES1	13*Prog
VCHES2	33*Prog	VCHES3	33*Prog
VCHES4	33*Prog	VCHES5	15*Prog
YAHTZEE1	13*Prog	YAHTZEE2	25*Prog

G023

Demon Attack. A space shootup type of game, has speech sound effects.

Engineer. Build a bridge using the least amount of beams.

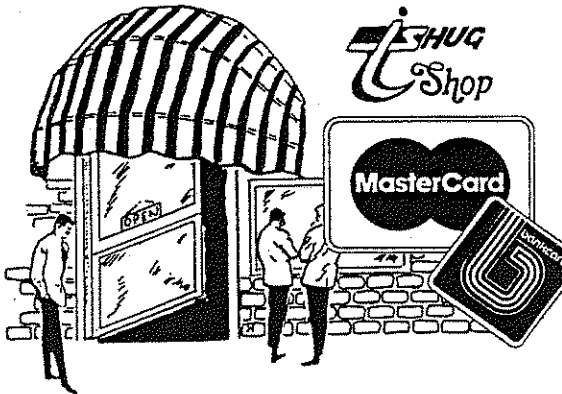
NASH. Fly around the screen picking up injured people and take them back to base, without getting shot down.

The Mine. A German game, like Miner49er.

Used= 358 Free= 0

DEMON1XB	36 Prog	DEMON2XB	36 Prog
DEMON3XB	37 Prog	ENGINEER	32 Prog
LOAD	5 Prog	MASH1XB	36 Prog
MASH2XB	35 Prog	MASH3XB	28 Prog
MINE1XB	35 Prog	MINE2XB	35 Prog
MINE3XB	15 Prog	ROOT	28 Prog

***** END OF ARTICLE *****



TISHUG SHOP
with Percy Harrison

This month I thought I would publish a letter which I received from our only member in France, Pierre Garoche. Pierre has been a member of our club for some years now and is a good customer of mine, regularly purchasing products from the shop. He has written in reply to my articles concerning the future of the club and although he has not specifically given his view on whether he is in favour of opening up the club to other computer users his letter does tell us what our club means to him.

Having been a member of the Australian French Association since the early 1960's and spending nine months in France, I do not have any trouble in understanding Pierre's written English, however, to make the letter clearer for our members to read I have taken the liberty of making a few very minor changes for ease of reading without, I hope, changing the intent, so here goes:

"In the last few issues of TND I have read many things about the aims for the club.

It is not the first time the TND has reflected the same concerns of the Board and it is a comfort to know that Board members do think about the evolution of the club.

This has egged me on to analyse the grounds for my interest in the club. I must point out that I am a retired engineer, having finished work in 1981, and during my working life I have never had to deal with computers directly.

As an overseas member I am in a similar situation as other TISHUG members who live far from Sydney. Probably they miss meetings. Perhaps some use the BBS, while others who are more remote only read the TND, but all know that the TISHUG Executives or other members would give them help if need be.

The information in the TND is very valuable and deals with many kinds of subjects.

I frequently need to refer to articles in back issues of the TND so I have bound photo-copies of the TND annual indexes from year 1987. This catalogue is a powerful tool. Using it I have come to realise that the TND collection is a breathtaking mine of information. When I refer to my TND index book, rare are the times that I do not find an answer to my problem.

In my opinion MICROpendium does not bring me so much valuable information on hardware, software, use of programs, fields etc. Conversely, I find in the MICROpendium commercial prices of devices and manufacturers addresses.

TND is a news digest where the information often has a discreet pedagogic spell and I ask myself if the Board is conscious of this typical feature of the publication. The ratio of the sundry published articles may change but the main thing is to preserve this very discreet feature.

I must add that the monthly description of software releases gives important information to enable us to buy what we need at the shop. The title of the floppy disk is only sufficient if it is a well known piece of software such as TI-WRITER, FUNNELWEB, DM1000, DSKU etc. I have asked other groups for such information and they kindly send me large catalogues but I am not able to make a choice and order anything from them as only the title of the floppy disk is listed.

If what I have written does not reflect my sincere thoughts then why each year do I renew my TISHUG overseas membership?

Best regards Pierre Garoche"

Many thanks for your letter Pierre, we do look forward to receiving word from our remote members as we do not get the opportunity to meet them. Also be assured that your Board members will continue to look after the needs of our TI computer users even if other computer users do join our club.

I have a large number of commercial programs in stock which I am again listing this month. If I do not get any orders within the next month I will be removing these from the availability list as I need to reduce the size of our stockholding so if you are interested in any of these programs please get your order to me promptly.

PRICE LIST.

COMMERCIAL SOFTWARE.

Artoons SSSD (3 Disk Set)	\$12
BABA Brewery Beer Labels SSSD	\$10
Bride of Disk of Dinosaurs SSSD	\$14
Character Set Graphic Design Cataloguer SSSD.....	\$6
Character Set Graphic Design I SSSD	\$12
Character Set Graphic Design II SSSD	\$10
Character Set Graphic Design III SSSD	\$14
Disk Utilities (Memorial Edition) DSSD	\$11
Disk Utilities (Memorial Edition) SSSD	\$12
Disk of Dinosaurs SSSD	\$10
Disk of Horrors SSSD	\$14
Disk of Pyrates SSSD	\$12
Display Master SSSD	\$15
Edu-pak Module + Book	\$25
FilmLib Vers 3.0 (TI-Base) SSSD	\$8
Fonts and Borders I SSSD	\$8
Fonts and Borders II SSSD	\$8
Fonts and Borders III SSSD	\$10
Fonts and Borders IV SSSD	\$8
Genial Traveler SSSD	\$6
GIF-Mania SSSD (Viewing GIF Files)	\$15
Legends (2 Disk Set) SSSD	\$30
McPaint (5 Disk Set)-DSSD	\$10
McPaint (10 Disk Set)-DSSD	\$20
Microdex I SSSD (4 Disk Set)	\$16
Microdex II SSSD (2 Disk Set)	\$11
Nuts and Bolts #1 DSSD	\$6
Nuts and Bolts #1 SSSD	\$7
Page Pro Applications #1 SSSD	\$2
Page Pro Line Fonts SSSD	\$9
Page Pro Medical Clipart-DSSD	\$10
Page Pro Medical Clipart-DSSD	\$13
Page Pro Templates Vol1-SSSD	\$8
Page Pro Templates Vol3-SSSD	\$8
Page Pro Utilities SSSD	\$17
Picasso Publisher Version 2.0 SSSD	\$14
Picasso Publisher Support Disk SSSD	\$6
Picasso Applications Disk DSSD	\$2
Rockrunner SSSD (Strategy Game)	\$15
Screen Preview SSSD	\$20
Smart Connect SSSD	\$15
Son of Disk of Dinosaurs SSSD	\$12
Spell It! (DSSD version)	\$24
Spell It! (SSSD version)	\$27
Star Trek (Calender) DSSD	\$14
The Missing Link Companion Disk SSSD	\$2
The Ring Companion SSSD	\$12
TI Casino SSSD (Gambling Games)	\$16
Word Processor Harrison Software SSSD	\$10
X Basher SSSD (XB Utility)	\$15
XB : Bug SSSD (Debugging Utility)	\$22
Typewriter Module Only	\$25
Disk of the Old West SSSD	\$17
Disk of the Ancient Ones SSSD	\$17

Packaging and postage extra on all items.

***** END OF ARTICLE *****

NOSTALGIA TIME

by Geoff Trott

This series of articles consists of my observations on the contents of the early TNDs starting with the earliest copies of our News Digest that I have in my possession. Assuming that you find that interesting, I am continuing with the series this month. Please stop me if you do not want me to continue. I will repeat my general disclaimer in case anyone reads this and gets the wrong idea. I am attempting to describe the look, layout and content of the newsletters without any critical intent. I will try to avoid using any adjectives which could cause offense and if anyone takes offense, that is purely their interpretation of the words and not my intention. I hope that makes it clear and that no one will be offended.

The next few issues, until the end of 1983, are slightly changed again. The colour of the paper was changed to a yellow buff colour and the back page no longer had a fixed format. In the September issue, the front cover has photographs of the editorial staff at work putting the magazine together. It looks like the same scenes I observed in 1987 when Shane did his last magazine. The contents offered a centrefold special and indeed the centre pages offer an exercise regime for keyboard users complete with good looking model. John Robinson notes that there should be 500 members by the end of September, the fees were \$20 per year and the club was looking for a Software Librarian. In the News column, there is a strong statement from TI about how they are going to continue to produce TI99/4As for the foreseeable future. There is also an article and pictures of John Robinson presenting to Shane Anderson a gift in gratitude for his founding the group in 1981 and all his work since then. There is a very detailed arcade games quiz, with answers. There is a screen dump of a program called Tutankhamun, about the ancient Egyptian of that name. There is a poem, re-printed from July 1982, on the Computer Operator. Andrew Nutting wrote about a meeting at NSWIT (no longer of that name) which looked at connecting to the world (USA) news data bases. This attracted some 40 members and there were some photographs taken at the proceedings which appear with the article. Younger set mentions addresses for user groups in Belgium, Denmark, France, Italy, Netherlands, Sweden, UK, West Germany and the USA. There were programs on Cannonball Run by Andrew Zagni of Tasmania, a Skull by E. Guerny, two programs from John Volk of Arkansas which give visual effects which can be used in your own programs and the Hallelujah Chorus by Garry Christensen (completed in the next issue). There is not much content in these 16 pages with some of the regular articles missing.

October seems to be the month when most members need to renew. The front page has four pictures/drawings of a general nature. The Editorial from Shane mentions two new regional groups at Liverpool and Gorokan just starting up. The next Sydney meeting was a Panel being asked questions and the members taking notes. John Robinson reports that the constitution is ready for printing, the club is going to purchase a Public Address system and an overhead projector. Nominations for the Co-ordinating committee were called for to be decided at the AGM in November. There was a question and answer page on the Foundation 128K card. This would have cost \$400 at that time. It is no wonder that not many were sold and that there was not much software written for it. Tips from David Liell starts with the basics of BASIC. There is a whole page from Charles LaFara, president of the International 99/4 Users Group which has some interesting news. The Younger set has some more addresses of overseas user groups, Edmonton, Texas, Ohio, New York. The programs in this issue were the end of the Hallelujah Chorus from the previous month, Flight Planning program by Ted Brown of USA, Resistor Education by Russell Hanson of USA, Music by Richard De La Cruz of Northern Territory, a world map by Steven and Jim and some assembler language programs to do counting on the screen at different speeds by using different programming techniques. I remember typing in that series of programs and trying them out. In the rest of the 16 pages are various advertisements and announcements. There is no list of the current committee and I get the feeling that some of the committee would not be seeking re-selection.

This has been a bit of a rush as I am trying to get a month ahead as I plan to be away for the next meeting. I shall take more care with the next instalment.

***** END OF ARTICLE *****

WORD PROCESSING PART 5

by Col Christensen
Brisbane User Group

ALTERNATE CHARACTER SET

This important character set is useful for transliteration and for printer control. The normal set of characters range in ASCII values from 32 to 127 as shown in your Basic manual. The WP editor similarly limits the range of characters in the word wrap or non word wrap mode to this range. But there is another mode provided in the editor where you can type ASCII values from 0 to 31 as well. To toggle to and from this mode, you press CTRL/U. In this alternate input mode (but I will call it the CTRL/U mode from now on), the cursor appears as an underline character. What happens in CTRL/U mode, all key ASCII values are reduced by 64. So a @ (ASCII 64) shows up as ASCII 0, an A (65) becomes a 1 and so on.

With the ability to type ASCII values below 32 you can directly control your printer from within your text. e.g. the printer code for expanded or enlarged print is ESC W 1. The ESC is character 27, the W is character 87, and the 1, would you believe, is character 1. In your text you can type this printer code just before any heading you want to enlarge. First the ESC (27) requires the CTRL/U mode, then a [which is ASCII 91. The CTRL/U mode subtracts 64 and character 27 shows on the screen as a tiny dash-B. In hexadecimal arithmetic that represents 1B which is 16+11=27. To type the W you now get out of the CTRL/U mode and type W normally. The 1 requires the CTRL/U mode again and pressing SHIFT/A (not a) makes the little 1 appear. So you should see on the screen a dash-B followed by the W then the tiny 1. Going over the keystrokes again, we have CTRL/U FCTN/R CTRL/U then W then CTRL/U SHIFT/A CTRL/U.

All the tiny characters are depicted in hexadecimal except for decimal 10, 12 and 13. These are special printer control characters that control the paper feed and print head position of the printer. They are called LineFeed, FormFeed and CarriageReturn respectively and show on the screen as LF, FF and CR. They can be typed in the CTRL/U mode by pressing SHIFT/J, L and M respectively.

MORE ON TRANSLITERATION

I should make passing mention here of a valuable disk that is probably in your Club program library. Once you have got the general hang of transliterates and the Iffing of files ask your program librarian for Jack Shugrue's disk called PLUS!. Print out the documents and try out the files on the disk.

Here is a sample file based on Jack's ideas that contains a lot of TLs for printer control through the Text Formatter. By using TLs most printer code sequences, no matter how long or involved, can be invoked by placing just a single character in the text. The file below has codes specifically for a Star printer and would suit most printers. The file should be saved as DSK1.*TL and stored on every disk you use for word processing. The reason for the asterisk in the filename is to ensure that this filename appears near the top of a directory listing and will not appear among the filenames of normal text files. To make use of the printer codes, one of the first lines of any text file should be .IF DSK1.*TL.

When typing the file below, firstly just type the transliterate code and press <ENTER> to get the ¨ symbols where they are shown. Then you can come back if you wish, in the non word wrap mode, to type the comments after each.

.TL 0:0=	@ Reserved for 0=off
.TL 1:1=	A Reserved for 1=On
.TL 2:27,72,32=	B Dble strike off
.TL 3:32,15=	C Condensed on
.TL 4:18,32=	D Condensed off
.TL 5:32,27,69=	E Emphasized on
.TL 6:27,70,32=	F Emphasized off
.TL 7:32,27,71=	G Dble strike on
.TL 8:8=	H=Backspace reserved
.TL 9:32,27,52=	I Italics on
.TL 10:10=	J=Line feed reserved
.TL 11:27,53,32=	K Italics off
.TL 12:12=	L=Form feed reserved
.TL 13:13=	M=Carr rtn reserved
.TL 14:32,27,50=	N 1/6 line spacing
.TL 15:32,27,48=	O 1/8 line spacing
.TL 16:32,27,80=	P Pica size print
.TL 17:32,27,51,17=	Q squashed lines
.TL 18:32,27,83,0=	R superscript
.TL 19:32,27,83,1=	S Subscript
.TL 20:27,84,32=	T Cancel sub/super
.TL 21:32,27,45,1=	U Underline on
.TL 22:27,45,0,32=	V Underline off
.TL 23:32,27,87,1=	W Wide enlarged on
.TL 24:27,87,0,32=	X Wide enlarged off
.TL 25:32,27,120,1=	Y NLQ characters
.TL 26:27,120,0,32=	Z Draft chars
.TL 27:27=	[ESCAPE reserved
.TL 28:42=	\ Asterisk
.TL 29:32,27,77=] Elite print
.TL 30:94=	^ Circumflex
.TL 31:46=	- Period

Now that you are conversant with typing characters in the CTRL/U mode, we can look back at the transliterate file listed above. We now can send a particular printer code string through the formatter by typing just one control character that transliterates to that string. By choosing control characters from 0 to 31 for the transliterates, the full set of normal characters is left free for use in the text. Look at one of the TLs in the file:

.TL 5:32,27,69= E Emphasized on

The printer code for turning emphasized print on is ESC E. i.e. characters 27 and 69 which you see in the TL above. 5 is the ASCII character to use to start Emphasized printing. To type the 5, first press CTRL/U to get the underline type cursor, then press SHIFT/E as shown in the comment after the transliterate above. The tiny character 5 appears. Press CTRL/U again to get back to normal cursor mode. Type E to complete the code followed by whatever word/s you want to appear emphasized when printed. Then cancel the emphasis (printer ESC F) by typing after the word/s the character, 6. That is, CTRL/U SHIFT/F and finally CTRL/U to return to normal cursor mode. Simpler when you're actually doing it rather than trying to grasp it mentally.

Referring again to the TL code above then, following the character 5 and the colon, are three character values assigned to the character 5. You've seen how the 27 and the 69 come from the printer ESC E code. That just leaves the 32 which is a space character. If the 5 were to be transliterated to the printer code for emphasized print style and encountered by the Formatter, the 5 would be removed from the text, acted upon in setting the printer code and the line filled to the right margin. But the Formatter fills to the right margin

before removing the character 5, so that line will end up one character short of the right margin. The space character, therefore, is included to be printed to compensate for that loss of one character.

If you intend to use the TL file above, you will need a reference to consult when using your word processor. The main thing to record is the list of SHIFT characters and what printer code they control. So start off by typing a list beginning with:

```
in CTRL/U mode
SHIFT Effect
B Dble strike off
C Condensed on
D Condensed off
etc
```

Maybe you have been observant and noticed that, for all the times I have said in this series not to do this and not to do that, I have broken the rules I set. You have probably noticed some lines beginning with periods, and several occurrences of asterisks and circumflexes etc. Transliteration has been the key to overcoming most of those hurdles which become limitations no longer. My only difficulty has been deciding whether I need to use an actual transliteration at a certain point or just to show an example of one as an illustration. Anyway, the whole business of transliteration can be quite complicated if you like to go into it deeply as I found out when I set out to transliterate a tilde to download a properly formed CR symbol to my printer. The best way to learn all the intricacies is firstly to have a need to use them and secondly to actually use the processes that produce the results you require.

MAKING A SETUP FILE

Most times that you start up your word processor you need to set up your favourite tabs, margins and indent positions and on the first few lines to prepare a set of print margins, transliterates, comments etc. Why not have a standard layout on a special disk file that will do all of the above for you each time you need it? Then, when you start, its a simple matter to do a LoadFile of that filename and simply carry on typing using your own default screen margins, tabs and indent positions as well as the formatter attributes as outlined on those first few lines loaded. A sample of such a file with filename *SETUP could be:-

```
.LM10;RM70;IN+5;FI;AD;PL60=-
.IF DSK1.*TL=-
.CO Here place name/purpose of file=-
.HE If required=-
.FO If required=-
```

Before you save this file to disk, you need to set the tabs also so that they, too, will automatically be saved with the file. So each WP disk you use would have in readiness two files, *SETUP and *TL, on them.

Next month there will be a discussion (one-sided, of course - no answering back allowed) on Form Letters and the use of mailing lists. To round off the series I will also include a list of hints and tips that come to mind.

***** END OF ARTICLE *****

TI WORLD NEWS

compiled by Jim Peterson

Bud Mills Services expects to be soon offering the SCSI hard and floppy disk controller for the TI 99/4A and Geneve. It will handle any combination of up to 7 SCSI hard and floppy drives, both 3.5 and 5.25 inches, and even a CD ROM player. It will read and write TI floppies in all current formats as well as PC compatible floppies, thus allowing direct exchange of data between TI and PC. The controller will be offered together with the SCSI drive, to insure compatibility.

The M.U.N.C.H. user group is offering a "Protect Your Investment" video showing how to take apart and clean the TI computer, and related subjects. It is available for \$9.95 plus \$3 S&H from Jim Cox, 905 Edgebrook Drive, Boylston MA 01505.

Don O'Neil has cancelled his Accelerator project. Due to technical incompatibilities between the TMS99105 and the TI-99/4A, it would not function without major modification of the TI console which would be beyond the capability of the average TI user; also the projected cost would have been too high for most users. O'Neil is promising to develop an inexpensive alternative using the 9995 microprocessor.

Mike Wright's "The Cyc" is now available. It is an encyclopedia of knowledge regarding the TI-99/4A and its accessories.

The alphabetical list of material has been drawn from the TI-99/4A Software Directory, 99/4 International Users Group catalog, 99'er Magazine, Texas Instruments Home Computer News, Computer Shopper, Enthusiast 99 Magazine, and various other sources. Mike thinks this is about 40% complete, and plans to add material from the Smart programmer, MICROpendium, Mini Mag 99, Rytte Data Newsletter, and User Group publications.

In other words, it consists of material from sources that went out of existence several years ago. Since it does not yet include MICROpendium, or the vast amount of material published in user group newsletters during the past 9 years, I doubt that it is even 10% complete.

The appendices consist of indexes to some of the above (including MICROpendium up to Vol. 2 No. 8), etc. and apparently list only a small fraction of the software that has been written for the TI.

The Cyc requires an IBM PC or compatible capable of running WordPerfect 5.1 for DOS or Windows. It is available from CaDD Electronics, 81 Prescott Road, Raymond NH 03077, for \$20 including S&H, on your choice of 5.25 360k, 5.25 1.2Mb, 3.5" 720K or 3.5" 1.44Mb diskettes. The price includes one upgrade as more material is added.

Stage 0 of PC99 is now available from the same source for \$49, or for \$40 to the 130 people who responded to the MICROpendium article. Stages 1 through 4 will each be the same price, if they are ever developed.

PC99 is software which allows TI-99/4A programs to be run on an IBM PC. Stage 0 does not do much, and does that too slowly to be practical. The developers are making no promises that any further stages will be completed; they want 1000 TI'ers to show an interest in buying it, and so far have only 130. They also admit that it will only run TI programs on the PC slower than they run on the TI, until a new faster generation of PCs becomes available.

Although PC99 uses software rather than hardware to emulate the TI-99/4A, it will require the Soundblaster card to emulate the TI's speech and music, and will presumably require some specialised hardware to emulate

Seems to me that TI programs with 28-column or 40-column text are going to look strange on a PC's 80-column screen, unless there is a way for a programmer to go in and modify them.

Would it not be more practical to write software that could translate TI Extended Basic programs into PC Quick Basic? Or even translate TI machine language programs into PC machine language?

An encyclopedia of TI information, that requires a PC running WordPerfect; and software to run TI programs on a PC - is this really the beginning of the end?

In the meantime, Bud Mills is selling his new SCSI ("Scuzzy") hard and floppy disk controller card, although the DSR needed to use it has not been finished. And Asgard Software is selling their new Memory Card, which supports from 128K to 512K of RAM when running programs designed to make use of the card, if any such are ever written. And Barry Boone has completed the buyout of MSDOS, so Geneve owners may finally have an operating system for their computer-on-a-card in an out-of-production P-box, if a programmer can be found to finish it.

All of which has caused me to decide to give the TI world an opportunity to invest in my Mongolian gold mining venture. I have not actually bought the mine yet, but I will as soon as I get a thousand investors. After that, we will start digging for gold as soon as the mining equipment is designed and built. I want to be totally honest, however, so I warn you that I may drop the project at any moment and leave you high and dry. In the meantime, do not expect me to answer phone calls or letters or keep you posted on the status of your investment. Now, what devoted TI'er could resist an offer like that?

Gary Bowser of OPA has released an open letter to the TI world to refute rumors that OPA has never made any of the products they offer, have never shipped anything by mail, etc. Actually, the only rumor I had heard was that OPA was apparently out of business because they never answered mail or phone calls.

Gary makes the point that the TI world is such a close-knit community that having one dissatisfied customer reduces the total amount of orders, and that he needs a steady and increasing amount of orders in order to support himself and support future development. That is all very true - but the rumors would never have started, and the customers would never have been dissatisfied, if he would just spend a few pennies and a few minutes of his time to answer every inquiry promptly, to notify customers of any delays and offer refunds if they are unwilling to wait. And he might get some orders if he would take out some ads in MICROpendium to let the TI world know what he has to offer. Messages posted on GENIE are not an effective method of advertising, and not an acceptable method of replying to customers.

While on that subject, TI'ers are quick to complain about poor service from vendors, but have you ever heard one praise a vendor for good service?

Bruce Harrison of Harrison Software will spend hours and hours making his software compatible with a customer's system, but you will never know about it unless you are that customer. Jerry Price has sometimes been accused of poor business ethics, but have you ever heard a complaint about the speed and quality of Tex-Comp's service, in all their years of doing business? There are other long-established vendors whom no one ever complains about, and no one ever praises. If I may blow my own horn just a bit, in the past 9 years 99% of Tigercub orders have been shipped the day they were received or the next mailing day, and complaints have been handled just as promptly

MIDI MASTER 99 and CASIO MT-240

by Jim Peterson

In my opinion, Midi Master 99 is one of the most interesting accessories ever developed for the TI-99/4A. It is very reasonably priced and, unlike many hardware developments, it offers no compatibility difficulties.

There are only two problems - obtaining it, and finding a low-priced MIDI-compatible keyboard to use it with.

Of all the TI suppliers with a poor reputation for filling orders, Crystal Software seems to have been the worst. Perhaps that has now changed, but the surest way to obtain the product would be to catch Mike Maksimik at a computer fair and walk away from his table with it firmly clutched in your hand.

Midi Master 99 was developed using the Casio MT-240 keyboard, which sold for about \$80, and I was lucky enough to be able to find one for that price. Unfortunately, it is no longer on the market. The only MIDI-compatible keyboards in the 1992 Casio catalog are the CT-700 at \$399, the CT-670 at \$499 and the CT-770 at \$599.

A local music store told me that Yamaha keyboards with the MIDI interface started at about \$200, but I do not know the model numbers. A few people have been able to find them in discount stores for about \$190, but those stores usually only stock them for the Christmas sales. The music stores only carry the professional keyboards in the \$400 - \$600 dollar range; they would probably order a cheaper model for you, but would certainly charge you full manufacturer's suggested retail price or more.

Many people are waiting to buy Midi Master 99, or to write any music for it, until Version 3 is released. I learned long ago not to hold my breath while waiting for a new version of any TI product.

Version 3 is supposed to allow you to play music on the keyboard, which will be converted into a MIDI file that the computer can play back, through MIDI, on the keyboard. Since I can only play a keyboard with even fewer fingers than the three I use for typing, that does not interest me.

Come to think of it, if you can play the keyboard, why would you want to convert your music to a MIDI file? Why not just tape it to a cassette, if you want to save it?

To me, the great thing about Midi Master 99 is that it allows me to create music even though I cannot play an instrument - just as I used to do in Extended Basic, using the three tone generators of the TI-99/4A. Also, it allows me to do things that no musician could do from the keyboard, such as playing two or more instruments simultaneously, or playing chords that no human hand could reach, or creating musical effects that would require two very nimble-fingered musicians.

Midi Master 99 consists of a cable, to connect your RS232 card to the keyboard, and a disk containing the necessary software, the documentation, and some sample music files. The documentation is adequate. It contains a good deal of technical material that is way over my head, but which is not necessary in order to use the program.

Music files are created by keying in an SNF file, from sheet music, using TI-Writer or Funnelweb or Editor/Assembler. If you use TI-Writer or Funnelweb, select the open cursor mode or else save the file by PF with the C option, because carriage returns will result in an error message.

If you have an elementary knowledge of reading music, keying in a selection is quite simple, although it does take time. The only thing I had to learn is that octaves start from C, not from A. The lowest note available, in octave 0, is the C which is 3 notes above Hertz 110 A, the lowest note available from the TI tone generators (other than the noise generator). This means that you may have to fudge on some notes in the bass clef.

***** END OF ARTICLE *****

You can key in all voices simultaneously or separately. That is, you can key in a melody note and its harmony notes, and then go on to the next, or you can key in the entire melody, and then the entire first note of the harmony, etc. Dolores Werths of Harrison Software, who knows more about this than I ever will, recommends the second method, but I am stubbornly sticking to the first way.

One serious flaw is the lack of looping - a directive to repeat the melody over again as many times as you wish, which is so easily done in Extended Basic programming. You can only use the Copy function of Funnelweb to copy the file after itself, which doubles the time required to load and compile it before playing. However, I understand that looping in this case is far more difficult than it would seem, and has only recently been implemented for MIDI on the PC.

According to the documentation, existing TI Basic music can be easily converted to the MIDI SNF format. In actual practice, it depends on how the music was originally programmed. That had best be the subject of another article.

The completed file can be saved in DV80 format, in which case it is loaded and compiled each time it is played, or in compiled image format which will load and play directly. The trouble is that the image file is stored in a very wasteful PC-style format of three 33-sector files. I have not done any comparative timing, but it seems that the additional loading time wipes out the time saved by not compiling - unless, of course, you have the file on a ramdisk or hard drive. Also, image files cannot be modified.

As a bonus for waiting so long for my Midi Master 99, Maksimik sent me a free copy of his Midi Album program. This requires the Mini Memory module or other device to provide extra memory, as Midi Master 99 itself uses all that is available. It will catalog a disk, allow you to select the files you want to play randomly or in sequence, and load and play them. It works very well. I did find that you must be sure to specify duration and instrumentation in the SNF file, if it is to be played through Midi Album; otherwise, it will carry through the values from the previous selection rather than using the program defaults.

For some reason, the documentation on my Midi Album disk was a DV254 file rather than a DV80 file, so it could not be printed with Funnelweb!

Different models of keyboards have different instruments available, and different numbers assigned to these instruments. Maksimik has provided a patch program, so that you can use your keyboard to play music written for a different keyboard. On the copy of Midi Master 99 he sent me, he had patched the percussion instrumentation into a couple of the other voices, which caused me great puzzlement for awhile.

If the music is in SNF format, it is probably more practical to just edit the file. I do hope that those who write MIDI music will include remarks in the SNF file, or separately with image files, to indicate what keyboard they programmed for and what instruments they assigned.

Regarding the Casio MT-240, it is a budget model which lacks some desirable features. For one thing, it does not allow MIDI to control the volume. It perhaps uses the same tone generators as a larger model because I found several instruments, numbered 21 through 29, beyond the 20 on the panel. There are also some additional percussion effects in the octave above the keyboard range.

I have found several problems which may be the fault of the keyboard, of Midi Master 99, or of Midi in general. Without having other keyboards to try out, I cannot tell.

Some instruments such as bells, are not practical to use because they continue to reverberate and create a dissonance. Others, such as chorus, drag out until they seem to affect the rhythm. Some, such as organ, are almost silent in the lowest octave, probably because they also sound in an octave lower. Some instruments sound harsh when programmed in all three voices although not when played from the keyboard. I have found it difficult to find pleasing combinations of two or more instruments. The best effects are generally obtained by giving all voices the default instrumentation of piano, and most existing TI MIDI music has been written for that instrument.

Dolores Werths, the renowned music programmer of Harrison Software, is trying to organize a by-mail users group for those making music with Midi Master. If you are interested, write to her at 5705 40th Place, Hyattsville MD 20781.

MORE ABOUT MIDI MASTER 99 by Jim Peterson

Bruce Harrison advises that Service Merchandise carries the Casio Model CT-700 (catalog number CT700ECD) at \$277.94 and the Yamaha model PSR 500 (catalog number 500YMA) at \$399.97. They also carry the power adapters for these models under catalog numbers AD5ECD for the Casio and PA5YMA for the Yamaha, at \$19.97 and \$22.63 respectively. Each of these is a five octave (61-key) instrument, with MIDI interface, and each has 100 selectable instrument voices.

Service Merchandise has 365 stores in the U.S., 14 in Ohio, including one on South Hamilton Road in Columbus. To find the closest store, or to place an order by VISA, DISCOVER or MASTER CARD, call toll free 1-800-251-1212.

I had been rather dissatisfied with the results I was getting with Midi Master 99, and did not know whether to blame Midi Master 99 or my Casio MT-240 keyboard. After listening to the two disks of "pop classics et al" written by Dolores Werths and released by Harrison Software (5705 40th Place, Hyattsville MD 20781, \$10 each ppd), I realize that I should have been blaming my own lack of skill in writing SNF files.

Dolores has been doing some wonderful things with MIDI, and I hope that she will write some articles to teach the rest of us. She has learned all kinds of neat tricks, such as beginning with a short rest too avoid "clipping" the first note of the music.

Dolores tells me that I was wrong in saying that the organ is almost inaudible in the lowest octave - when heard through a good sound system, rather than through the keyboard's speaker, it is indeed audible and effective.

Maksimik's documentation mentions that Midi Master 99 can be run from any drive, but he takes it for granted that you will know how to do so - the diskname must be MIDI. If you want to run it from your ramdisk, the ramdisk must be named MIDI - and if your ramdisk also contains another program that only runs from a specific disk name, you will have to do some renaming back and forth. If you want to avoid that, Bruce Harrison told me how. Use DSKU to edit the file MASEXB. Change DSK.MIDI.CHARA1 to DSK4. .CHARA1 - presuming that your ramdisk is drive 4. Change DSK.MIDI.OPTIONS to DSK4.OPTIONS and then, in hex mode, change OF44534B to OB44534B and 1044534B to OC44534B. Then change the LOAD program to run DSK4.MASEXB.

If the disk that Mike sold you is like mine, it also contained some sample pieces of music and some work files and odds and ends. The necessary files that you must transfer to the ramdisk or whatever are LOAD, MASEXB, CHARA1 and OPTIONS.

The copy of Midi Master 99 that Maksimik sent to me had the percussion patched into three of the other instruments. You might want to check to make sure that yours has not been tampered with. To do this, select 6. Program Patch Librarian from the main menu. It will ask you for a program number from 0 to 127 - what it wants is an instrument number. These are normally numbered from 0 upwards, from left to right, on your keyboard panel. Enter 0. It will show you the current value; if that is other than 0, it has been patched. Anyway, enter 0 for the new patch value, then continue with 1 and so on for as many instrument voices as your keyboard has. Then use FCTN 9 to escape back to the main menu.

If you corrected any patches, you must now select 5. Program Setup to make them permanent. It will ask you for a foreground color and then a background colour, from 0 to 15. These are the assembly color codes, which may confuse an Extended Basic programmer and will confuse a non-programmer even more, resulting in some strange color combinations or even a blank screen. Use 15 for foreground and 5 for background, to keep the usual white on dark blue.

You are then asked for an RS232 port number. If you use a Y-cable to connect your modem and Midi Master 99 to the serial port of the RS232, you can select 2 and keep both hooked up permanently. Finally you are asked for the duration value, which is usually 400. Then you have the option to make these changes permanent.

If you also purchased Midi Album 99, you may have to fix another of Mike's mistakes. On my disk, although the README file says the MALDOCS documentation file is a DV80 file, it is actually a DV254 file which cannot be printed through Funnelweb etc. However, it is in 80-character format, so can be converted by this little program-

```
1 OPEN #1:"DSK1.MALDOCS",VARIABLE 254,INPUT :: OPEN #2:"
DSK1.DOCS80",OUTPUT
2 LINPUT #1:M$ :: PRINT #2:M$ :: IF EOF(1)<>1 THEN 2 ELS
E CLOSE #1 :: CLOSE #2
```

***** END OF ARTICLE *****

TIPS FROM THE TIGERCUB NUMBER 68

Tigercub Software
156 Collingwood Ave.
Columbus, OH 43213

My three Nuts & Bolts disks, each containing 100 or more subprograms, have been reduced to \$5.00 each. I am out of printed documentation so it will be supplied on disk.

My TI-PD library now has almost 600 disks of fairware (by author's permission only) and public domain, all arranged by category and as full as possible, provided with loaders by full program name rather than filename. Basic programs converted to Extended Basic, etc. The price is just \$1.50 per disk(!), post paid if at least eight are ordered. TI-PD catalog #5 and the latest supplement is available for \$1 which is deductible from the first order.

When I have finished reading Barry Traver's column in Computer Monthly, I like to take a look at whatever Dr. Michael Ecker is up to in his "Recreational Computing" column, although much of his Maths is beyond me and I cannot always translate his GW Basic into TI Basic. In the February issue, he had a routine to play Fibonacci modular music. This is the TI version; it is not very musical, but the notes are in the chromatic scale.

```
100 A=0 :: B=1 :: M=51
110 C=A+B :: C=C-M*INT(C/M):: CALL SOUND(-100,110*2 (C/1
2),5):: A=B :: B=C :: GOTO 110
```

Dr. Ecker also had a challenge to swap two numbers without using a third variable or the SWAP command-which TI Basic does not have anyway. The practical way, of course, is to use the 3rd variable, T=A :: A=B :: B=T, but just for the fun of it, if we are dealing with one-digit numbers-

```
100 A=1 :: B=2 :: A=A+B/10 :: B=INT(A):: A=(A-INT(A))*10
:: PRINT A;B
```

But suppose we are dealing with numbers of any length- we can still do it with a one-liner, or a two-liner if we want to input the numbers from the keyboard-

```
100 INPUT A :: INPUT B
110 B=B/10 (LEN(STR$(B))): A=A+B :: B=INT(A):: A=A-INT(
A):: A=A (LEN(STR$(A))-1) :: PRINT A;B :: GOTO 110
```

So you got smart and tried a negative number or a decimal? OK, how about this-

```
100 INPUT A$ :: INPUT B$
110 A$=A$&" "&B$ :: B$=SEG$(A$,1,POS(A$," ",1)-1):: A$=S
EG$(A$,POS(A$," ",1)+1,255):: PRINT A$;" ";B$:: GOTO 110
```

And another challenge was to alternately assign X the value of A and B, without using IF...THEN or any outside help. That seems to require a two-liner-

```
100 A,X=77 :: B=132
110 X=ABS(X=A)*B+ABS(X=B)*A :: PRINT X :: GOTO 110
```

The only honest way to compute interest on a loan is on the unpaid balance, although the banks and finance companies have devised more complicated and profitable ways. If you want to make an honest loan, here is how to do it-

```
100 DISPLAY AT(3,1)ERASE ALL:"SIMPLE INTEREST CALCULATOR
":"For interest to be calculated monthly on unpaid
balance."
110 DISPLAY AT(9,1):"Printer? PIO" :: ACCEPT AT(9,10)SIZ
E(-20):P$
120 DISPLAY AT(11,1):"Amount loaned? $" :: ACCEPT AT(11,
17)VALIDATE(NUMERIC):A
130 DISPLAY AT(13,1):"Interest rate? %" :: ACCEPT AT
(13,16)SIZE(4)VALIDATE(NUMERIC):X
140 IF X<1 THEN DISPLAY AT(12,1):"Enter as a percentage"
:: GOTO 130
150 DISPLAY AT(15,1):"Monthly payments of $" :: ACCEPT A
T(15,22)VALIDATE(NUMERIC):P
160 DISPLAY AT(17,1):"Beginning in month (1-12) of year"
170 ACCEPT AT(17,27)VALIDATE(DIGIT):M :: ACCEPT AT(18,9)
VALIDATE(DIGIT):Y
180 DATA JAN,FEB,MAR,APR,MAY,JUN,JUL,AUG,SEP,OCT,NOV,DEC
190 X=X/100 :: DIM M$(12):: FOR J=1 TO 12 :: READ M$(J):
: NEXT J
200 OPEN #1:P$,VARIABLE 254 :: PRINT #1:CHR$(27)&"E"&CHR
$(27)&"G"&CHR$(27)&"N"&CHR$(6)&CHR$(27)&"M";
210 PRINT #1:"$";STR$(A);" FINANCED AT ";STR$(X);"%
WITH MONTHLY PAYMENTS OF $";STR$(P);" BEGINNING ";M$(M);
Y:"
220 I=A*X/12 :: TI=TI+I :: A=A+I-P
230 PRINT #1:M$(M);Y;" PAYMENT $";STR$(P);" OF ";
240 PRINT #1,USING "$###.###":I:: PRINT #1:" INTEREST AN
D ";
250 PRINT #1,USING "$###.###":P-I:: PRINT #1:" PRINCIPA
L- BALANCE OF ";
260 PRINT #1,USING "$###.###":A
270 M=M+1 :: IF M=13 THEN M=1 :: Y=Y+1
280 IF A>P THEN 220
290 PRINT #1,USING "FINAL PAYMENT $###.###":A :: PRINT #1
,USING "TOTAL INTEREST PAYED$###.###":TI
```

Thanks to Bruce Harrison, here is a neat subprogram to sort strings into sequence as they are entered-

```
100 CALL CLEAR :: DIM W$(100)
110 FOR J=1 TO N :: W$(J)=" " :: NEXT J :: INPUT "N=? " :N
120 INPUT I$ :: IF I$="" THEN 130 ELSE CALL INSORT(W$(
),I$,N) :: GOTO 120
130 FOR J=1 TO N :: PRINT W$(J):: NEXT J :: GOTO 110
30020 SUB INSORT(W$( ),I$,N):: FOR T=1 TO N :: IF I$>W$(T
)THEN 30030 ELSE 30040
30030 NEXT T :: GOTO 30050
30040 FOR J=N TO T STEP -1 :: W$(J+1)=W$(J):: NEXT J
30050 W$(T)=I$ :: N=N+1 :: SUBEND
```


In the test routine in lines 100-130, give N the value of 0, input some words and then just press enter. To start a new array, use FOR J=1 TO N :: W\$(J)=" " :: NEXT J, then reset N to 0. If you want to sort in reverse sequence, change the > to <. If you need to sort numbers, delete all the \$, change the "" in line 120 to 0, and input a 0 when you are when finished inputting.

Someone sent me a program to figure days between dates but it would not count leap dates, so I decided to write one that would.

```
100 DISPLAY AT(2,5)ERASE ALL:"DAYS BETWEEN DATES";"";"
including leap year days" :: M$(1)="From" :: M$(2)="To
" :: R=13
110 DATA 31,28,31,30,31,30,31,31,30,31,30,31
120 DIM L(12):: FOR J=1 TO 12 :: READ L(J):: NEXT J
130 FOR J=1 TO 2 :: DISPLAY AT(R-1,1):M$(J):"year m
onth day " :: ACCEPT AT(R,6)VALIDATE(DIGIT)SIZE(4):Y
(J)
140 ACCEPT AT(R,17)VALIDATE(DIGIT)SIZE(2):M(J):: IF M(J)
<1 OR M(J)>12 THEN 140
150 ACCEPT AT(R,24)VALIDATE(DIGIT)SIZE(2):D(J):: IF D(J)
<1 OR D(J)>31 THEN 150
160 CALL LEAP(Y(J),X):: L(2)=L(2)-X :: IF D(J)>L(M(J))TH
EN 150
170 L(2)=28 :: R=R+3 :: NEXT J :: R=13 :: IF Y(1)>Y(2)TH
EN T=Y(1):: Y(1)=Y(2):: Y(2)=T :: T=M(1):: M(1)=M(2):: M
(2)=T :: T=D(1):: D(1)=D(2):: D(2)=T
180 IF Y(1)=Y(2)AND M(1)>M(2)THEN T=M(1):: M(1)=M(2):: M
(2)=T :: T=D(1):: D(1)=D(2):: D(2)=T
190 L(2)=28 :: IF Y(2)>Y(1)THEN 220
200 IF M(1)=M(2)THEN B=ABS(D(2)-D(1)):: GOTO 260
210 CALL LEAP(Y(1),X):: FOR J=M(1)+1 TO M(2)-1 :: B=B+L(
J)+X*(M(1)=2):: NEXT J :: B=B+L(M(1))+X*(M(1)=2)-D(1)+D
(2):: GOTO 260
220 CALL LEAP(Y(1),X):: B=L(M(1))-D(1)+X*(M(1)=2)
230 FOR J=M(1)+1 TO 12 :: B=B+L(J)+X*(J=2):: NEXT J
240 FOR J=Y(1)+1 TO Y(2)-1 :: CALL LEAP(J,X):: B=B+365-X
:: NEXT J
250 FOR J=1 TO M(2)-1 :: CALL LEAP(Y(2),X):: B=B+L(J)+X*
(J=2):: NEXT J :: B=B+D(2)
260 DISPLAY AT(20,1):B;"days between" :: B=0 :: GOTO 130
270 SUB LEAP(Y,X):: X=(Y/400=INT(Y/400)):: IF X=-1 THEN
SUBEXIT ELSE X=(Y/4=INT(Y/4)):: IF X=0 THEN SUBEXIT ELSE
X=(Y/100<>INT(Y/100))
280 SUBEND
```

A leap year is a year that is evenly divisible by 4 unless it is evenly divisible by 100 but not evenly divisible by 400. The subprogram in lines 270-280 will give X a value of -1 if Y is a leap year.

Gene Hitz of Arcade Action Software reports another undocumented feature of TI Extended Basic. The manual says that you can only enter a subprogram by a CALL and only leave it by a SUBEXIT or SUBEND, but the manual is wrong. You can GOSUB to a subroutine within a subprogram, providing it does not contain a SUBEXIT, and return; and you can GOSUB from within a subprogram to a subroutine in the main program, and return. In this way, you can transfer variables in and out of a subprogram without putting them in a parameter list. See for yourself-

```
100 CALL CLEAR
110 INPUT M$ :: CALL SUB(M$):: PRINT M$ :: GOSUB 140 ::
PRINT "M$ IS";X;"CHARACTERS LONG" :: GOTO 110
120 M$="SEE WHAT I TOLD YOU?" :: RETURN
130 SUB SUB(M$):: GOSUB 120 :: GOSUB 140 :: SUBEXIT
140 X=LEN(M$):: RETURN
150 SUBEND
```

If you are among the lonely few who have purchased my TI-PD disks, you will know that most of them load from a menu by full program name, not those abbreviated filenames. Those menus are prepared quickly and easily by my Catwriter program which was published in Tips #47 and in MICROpendium and is available on TI-PD 1105.2.

I was asked if there was a way to dump those full program names to the printer. There is, but it requires a big program- like this-

```
1 OPEN #1:"DSK2.TI-PD/CAT",APPEND
2 DISPLAY AT(12,1)ERASE ALL:"TI-PD# ?" :: ACCEPT AT(12,1
0):N
14 FOR J=1 TO X-1 :: READ X$ :: PRINT #1:X$,TAB(30);N ::
NEXT J :: CLOSE #1 :: STOP
17 REM
```

Save that on an empty disk by SAVE DSK2.C,MERGE. Put your TI-PD disk in drive 1, boot its LOAD program, break it with FCTN 4 and enter MERGE DSK2.C, then RUN. Put in the next TI-PD disk and do the same. You will have a D/V80 file of all the programs, followed by their TI-PD disk number. Run the file through Sort Experiment or TI-Sort or whatever, and you can print them out in alphabetical sequence.

If you have only one drive just change that DSK2. to DSK1. and swap disks after breaking the LOAD program. Of course, this will not work with fairware disks which have the author's own loader or some other disks which do not have my Catwriter load for one reason or another. You will have to type those into the file.

Another user asked me if there was anyway to key in the ASCII above 127 into TI-Writer's Editor. Many of those ASCII can be entered from the keyboard by using the CTRL and FCTN keys- try this-

```
100 INPUT N$ :: PRINT ASC(N$):: GOTO 100
```

The Editor has been programmed to refuse them because so many of those FCTN and CTRL combinations are used as edit commands.

I had a bright idea- I thought. I wrote a little program to create 127 files, named 128 through 255, each containing just the ASCII of the same number. Now, I thought, when I want to put in such an ASCII I will just LF that file into the next line and CTR 2 to pop it into place. But the Editor refused to even load a file that began with an ASCII above 127!

I will fool you, I thought. I created those files again, but with an asterisk before the high ASCII. Now they loaded all right, but each ASCII above 127 became an ASCII 128 numbers lower! It is too bad that the Editor does not have a command to add 127 to an ASCII, just as CTRL U subtracts 64, but if you want those graphics characters in your text you will just have to transliterate them and print through the Formatter.

Folks take it for granted that my Nuts & Bolts disks are only useful for programmers, but they contain many routines so simple to use that anyone can use them to dress up their favourite program. For instance-

```
20083 SUB TITLE(S,T$):: CALL SCREEN(S):: L=LEN(T$):: CAL
L MAGNIFY(2)
20084 FOR J=1 TO L :: CALL SPRITE(#J,ASC(SEG$(T$,J,1)),J
+1-(J+1=S)+(J+1=S+13)+(J>14),J*(170/L),10+J*(200/L)):
: NEXT J
20085 SUBEND
```

Key that in and save it by SAVE DSK1.TITLE,MERGE. Load your favourite program. Enter MERGE DSK1.TITLE. Make sure your program does not have a line 1 or 2- if so, RES it. Type in-

```
1 CALL CLEAR :: CALL TITLE(5,"MY PROGRAM")
2 FOR D=1 TO 1000 :: NEXT D:: CALL DELSPRITE(ALL)
```

And try it. Instead of "MY PROGRAM", put the name of your program. Instead of 5, put the number of whatever screen colour you would like, from 2 to 16- check your Basic manual. Change 1000 to whatever delay you want. If you have selected a screen colour that will leave text legible, use-

```
2 DISPLAY AT(24,1):"PRESS ANY KEY" :: DISPLAY AT(24,1):"
Press Any Key" :: CALL KEY(O,K,S):: IF S=0 THEN 2 ELSE C
ALL DELSPRITE(ALL)
```

You might also need a CALL SCREEN(8) to restore normal screen colour.

CHANGING SYSTEM DEFAULTS

TI WRITER / MULTIPLAN / FAST TERM

Here are some instructions for changing the defaults for the TI Writer formatter printer, the Multiplan printer and data drive, and Fast Term data drive(s) and filenames.

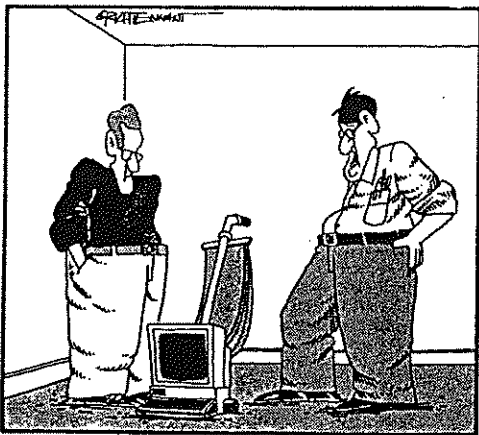
TI-WRITER DEFAULTS

This is an instruction listing for changing the printer defaults for the printer defaults for the printer in the formatter. All numbers are in HEXIDECIMAL.

1. Format a blank, single sided, single density disk. (Do not use a disk that has had programs erased!)
2. Copy the file FORMAL onto the blank disk. If you are using Funnelweb, then it is file FO, although Funnelweb is easier to change if you use the configure capabilities.
3. Using a sector editor, such as DISK+AID, read sector 22.
4. Starting at byte 76 enter the name of your output device. The ASCII edit mode (Fctn 2) is easiest for this. After editing do a Fctn 8 to effect the change. You can toggle in and out of the ASCII mode by doing Fctn 2 and Fctn 1.
5. Copy the file back onto your working disk and presto! No more having to enter the name of your printer again (unless you have two printers like me and then just put in the one you use most or is the longest to enter like the RS232/2.BA=1200.DA=8.CR).

MULTIPLAN DEFAULTS

1. Format a blank, single sided, single density disk. (Do not use a disk that has had programs erased!)
2. Copy the file MPINTR onto the blank disk.
3. Using a sector editor, such as DISK+AID, read sector 23.
4. At bytes 5F enter the DATA drive number (ie:2). (the ASCII edit mode is easiest for this).
5. At bytes C4 thru EB enter the name of your output device (the ASCII edit mode is easiest for this).
6. Copy the file back onto your working disk and presto! No more having to enter the name of your printer again (unless you have two printers like me and then just put in the one you use most or is the longest to enter like the RS232/2.BA=1200.DA=8.CR).



"IT STARTED OUT AS A KIT, AND WHILE I WAS WAITING FOR PARTS, THEY MERGED WITH A VACUUM CLEANER COMPANY."

FAST TERM

Editor's note: I tried each of the above and found that the sectors numbers in the original article were incorrect for both the TI-Writer and Mutiplan, so I rewrote part of this article to make it correct. I have not tried it with Fast Term so you may have to have a look at it yourself by going forward or backwards (Fctn 4 and Fctn 6 to find the correct sector. Do this in the ASCII mode so you can tell when you have arrived.

1. Format a blank, single sided, single density disk. (Do not use a disk that has had programs erased!)
2. Copy file UTIL1 onto the new disk.
3. Read sector 36 in the ASCII display mode (if possible).
4. Bytes AE thru BC are the Xmodem/TIII file transfer name. (ie: DSK2.SENDFILE).
5. Bytes D2 thru EO are the autolog file name. (ie: DSK2.LOG)
6. Copy the file UTIL1 back onto your working copy and you are set to go.

NOTICE*NOTICE*NOTICE Perform the above procedures only on working copies and not on the master copies in case you make a mistake.

For advanced users of DISK+AID:

You can forego the file copy method by using the ASCII search method but be careful because if you are searching for the string "RS232" find the printer default, it will stop on an earlier sector than you want. At single density, it will stop 9 sectors too soon assuming that the file is not fractured. The byte locations will be your only guide in this case. When they match, you got the right sector.

For the data drive number, search for the string "DSK1." and make sure the byte numbers match! This is the preferred search string as both modifications are in the same sector.

Hope somebody can use this.

Mad Mel



"What a day! The computer broke down and we all had to think!"

INSTALLING AND USING RAMDISK FOR TI 99/4A

This article describes how to install a Ramdisk into your PE Box and commence using it as a "Solid State Disk Drive".

The first step after assembling the Ramdisk is to ensure your system is switched off and then to place the Ramdisk Card into an unused slot in the PE Box. Ensure that the card is pushed firmly home into the PE Box connector and that no metal parts are in contact with the metal frame of the PE Box. Refit all covers and prepare your system for use.

Switch on your computer and with Extended Basic cartridge in place, insert your ROS 8.14 disk into DRIVE ONE. Press 2 twice to invoke the loader program to load the ROS(RAMDISK OPERATING SYSTEM) from DSK1 into system memory.

When the menu appears press 1 to load CONFIG(Configure). Once this has occurred, your screen will list how your RAMDISK is configured. You may have a "RAM ONLY" or RAM + EPROM Ramdisk. However, what is important is that you understand what to expect to see on the screen. Below is a typical screen listing for a Ramdisk with 96K of RAM. Note that if you have EPROM on board, it will not be listed until you have gone through the steps of loading in another program called EPRINSTI(EPROM INSTALLER) which we will cover later.

```
eg. >1000 32*8 Horizon * 96K 96K OK
    >1100 Drive Control
```

For now, you should have a screen display which lists the kilobyte value of RAM memory on board your Ramdisk.

From the menu at the bottom of the screen, select L for Load ROS. When this has occurred, from the same menu select D for Drive and type in your Drive Number e.g. 5 (default) then e.g. Ramdisk5 as diskname. Ignore the W/P field but type Y for yes in the Format field. Press Fctn 6 to execute the setup. Go back to the menu and use the enter key to put the cursor over the Power Up field and type N for off. This withholds program control from trying to power up from the Ramdisk for the moment, for we still have some setting up to do. Press Q for quit and Fctn =. This should return you to the normal TI screen seen upon booting up your system.

Now use DM1000 to catalog your ROS disk in DSK1. Use the copy utility to copy all the files from DSK1 to DSK5, which you require. These will include CFG, DU DV, ED/ASS, MG, MENU etc. Now catalog your RAMdisk using disk utility to check that all files have been copied correctly.

LOADING EPRINSTI(Eprom Installer)

This utility on your ROS disk enables you to tell your RAMDISK what software(actually FIRMWARE) is in on board EPROM.

Load ED/ASS (Editor Assembler) from menu on DSK1. Choose OPTION 5 Type in DSK1.EPRINSTI and this "installs the Eprom/s".

Exit the system, Reboot and then load ROS again using Extended Basic cartridge. Go to the system menu screen and Edit it to show how you wish the menu to appear. Len/Name columns enable you to type in the Length(of the Filename) followed by the filename abbreviation

```
eg. 3 MGR
    2 DM etc.
```

Now put the cursor into the Power Up field and type Y for ON.

Exit the screen using Q and Fctn=. The RAMDISK menu should then appear on screen. It is white on a blue background. This menu can now be edited to read exactly what you want it to.

EDITING THE MENU SCREEN

Press Fctn 5 and the cursor can be moved around using the arrow keys so that you can then type in the call name of the programs in Ram on your Ramdisk.

E.g. DSK5.(filename) or DSK*.filename are both acceptable.

NB: All EPROM based software must be prefixed as DSK6., as DSK5. is for RAM only, e.g. DSK6.FW will suffice for FUNNELWEB.

Press FCTN 9 to execute and then save the menu to DSK1.MENU so that you can recall your preferred menu setup from disk if ever you need to. (Sometimes RAMDISKS can crash and need ROS to be reloaded etc.)

Note that the last RAMDISK main menu field is called "C". This is for CONSOLE module call up. If you press C control is passed to the keyboard and you can then use the "G" key to toggle between BASIC/EXTENDED BASIC using your Extended Basic module. Use "X" key to execute your selection.

Now we will cover some of the ways you can "CALL" to your Ramdisk and execute certain keyboard commands.

USING RAMDISK and CALLS TO RAMDISK

Printing Directory: From menu, press Shift 1 (brings up printer and asks DISK# ? Type the disk number and its directory will be printed.

Printing a File: Press Shift 2 brings up Printer and will print out a file.

Shift P: Brings up the Printer.

"K" brings up call to instantly LOAD A FILE.

then:-

"AO" Turns menu ON
"AF" Turns menu OFF

"WO" Turns Write Protect ON
"WF" Turns Write Protect OFF

"DN.O. sets drive to what you wish.

Calling files using BASIC

From RAMdisk menu select C. Type CALL(filename). Program will run unless it is an extended basic program for which "X" will execute RUN. "D" to delete single files. "S" holds first screen of a listed directory.

USING RAMDISK MENU TO RUN A PROGRAM

Press 1
Press 5 for Ramdisk#
Use space bar to move cursor to highlight program required.
Press 3 to RUN program.

TO VIEW A DIS/VAR 80 FILE

1. Mark with Cursor
2. Press ENTER ~~then~~ Then 2 Then ENTER

I trust that this has all been useful. Dick.

***** END OF ARTICLE *****

STAR NX-1020 RAINBOW PRINTER

by Jim Peterson

After several years of heavy use, my sturdy old Gemini 10X printer decided to ignore the RS232 card, although it still performed in the test mode. So, it seemed to be time to catch up with the advances in technology by buying a new printer. When a car gives me several years of trouble-free service, I usually trade it in for another car from the same manufacturer. It seemed sensible to do the same when shopping for a new printer.

So, I wanted a Star Micronics printer, I wanted a colour printer, and the latest model I knew of was the NX-1020R, so I started calling around town for prices. I did not even bother calling the place whose ads suggested they dealt only in the high-priced heavy duty business equipment, but even the discount computer stores did not have much to offer. They are more interested in pushing 24-pin printers. As I understand it, the TI-99/4A cannot drive a 24-pin printer unless it has a 9-pin mode, in which case you would only be using 9 of the 24 pins.

One store did offer to sell me an NX-1020R for \$239. I believe in supporting local vendors, but only when their prices are somewhere this side of the moon. I do not like to buy from those big discount mail order firms, but B.C.S. Megasource was offering the same printer in a Computer Shopper ad for \$169. It turned out there was also a \$20.99 shipping charge, which was a ripoff, but \$189.99 is a lot less than \$239 plus sales tax, and they did ship promptly.

The first thing I did was to run over to MicroCenter to buy a black ribbon, rather than use up the black portion of the colour ribbon that came with the printer. To my great disgust, I found that generic ribbons were not yet available - MicroCenter could not even find the NX1020 in their cross-reference manual. I searched their shelves, and found the correct ribbon, marked ZX9, made by Star Micronics, "for Star 9-pin printers." The price was \$12.95, which is HIGHWAY ROBBERY! I tried one of the \$4 generic ribbons for the NX1000, and found that Star Micronics had changed the design just enough so that it would not fit. This was very obviously done in order to force their customers to buy their OUTRAGEOUSLY OVERPRICED ribbons. This is equivalent to selling a car which would only run on a special gas that was only available from the car manufacturer, at \$10 a gallon. Any company that will treat their customers like that deserves to be BOYCOTTED! I will never again buy a Star Micronics product, and I urge everyone else - DON'T BUY FROM THEM!

Well, that is the part of this review that I am going to send to Consumer Relations at Star Micronics. I have since found a source for generic ribbons at \$8, which is still a ripoff. I know that the other manufacturers pull the same stunt, and it was stupid of me not to check on ribbon availability before I bought the printer. I was perfectly happy with the \$.79 typewriter-spool ribbons of the old Gemini 10X, even if I did get a bit of ink on my fingers.

So, how do I like my new printer? I can only compare it to my old Gemini 10X. That is about like comparing a Model-T Ford to a Ferrari. The Model-T and the Gemini 10X had more metal and less plastic, and probably lasted a lot longer than the new cars and printers will, but printer technology has made a vast leap forward in the past several years.

Those microscopic inaccessible idiotic dip switches have been replaced by a front panel which accesses the electronic dip switch mode if you press three buttons simultaneously. According to the manual, the Font button will then select the Bank Number and the Pitch button will select the Switch Number. The remainder of the instructions make no mention of Banks or Switches, but I figured out that by pressing the Font button to the 2nd light and the Pitch button to the 3rd light, and then pressing the Park button, I could turn off Switch B-3 and thereby enable the Tear-off function. Pressing the on-line button causes the printer to remember this setting each time the printer is turned on. Most of the other 15 switches are probably of little use unless you are working with IBM software, multi-part forms, non-standard page lengths, etc.

However, the five buttons on the panel have many other uses which I will use more frequently. Holding down the Font and/or Pitch buttons while turning on the printer allows me to override printer commands in the software and select the font (high speed draft, draft, or one of the NLQ fonts - Sanserif, Courier, Orator or Script) and pitch (pica, elite, condensed pica, condensed elite, or proportional). This takes a bit of learning because some options are indicated by a combination of lights; for instance, Sanserif is selected when the Draft and Courier lights are both on!

I do wish that emphasized and double e-struck print could be selected from the front panel - would come in very handy when your ribbon starts getting old and weak.

Which reminds me of a peculiarity of this printer. Apparently it is mechanically impossible for a 9-pin printer to print emphasized condensed print. The Gemini 10X manual warned me of this but the NX1020R manual did not. If you attempt to do so, the Gemini 10X and the NX1000 and probably other printers will give you condensed print which is not emphasised - the NX1020R gives emphasised print which is not condensed!

The printer has too many other features to describe here. There is a 16kB printer buffer - but if you download a character set, this is reduced to one line. The four NLQ fonts print very sharply. In addition to the usual double e-width printing, double-height and quadruple size are also available. If you have one of the expensive colour ribbons installed, you can print in 7 colours - although yellow is almost invisible. A number of special character sets are available, but I do miss the many graphics symbols that were so readily available on my old Gemini 10X.

Buttons on the front panel make it very easy to advance a sheet far enough to tear it off, and then reset the next page to top of form. There is also a button combination to advance or retract the paper in very small increments. This is extremely useful for getting strip labels aligned properly - and also very dangerous. Pressing the wrong combination can cause the strip of labels to go careening backwards - which is very likely to cause a label to peel off and get jammed under the platen, especially if you are using the better quality strip labels which are attached rather loosely to the backing. I have made this mistake three times, and have been very lucky that I was able to dig out the jammed labels without disassembling the printer. From now on I make micro-adjustments forward only.

In the meantime, Harley Ryan took my old Gemini 10X home and got it working with the aid of a 10-cent chip. I wonder what Star Micronics would have charged for that?! It pays to have friends in a user group - the manufacturers are NOT our friends.

P.S. - I have just learned that Midwest Micro sells NX1020R black ribbons for just \$3.98 each if you order six. Their 800 number is 972-8844.

***** END OF ARTICLE *****

TECHO TIME

by Geoff Trott

My other system

Carrying on from last month I would like to talk about my other system. This is the system that my children use to play games on, which is relatively portable to take to meetings and which I use for testing hardware items at home. It consists of a beige console with two switches and a push button down the right hand side of the console, just to the right of the power switch. These were installed by Lou Amadio and give a reset button which can be enabled and disabled by one of the switches. The other switch is not connected to anything as Lou would have used it to enable and disable an Extended BASIC cartridge inside the console. I do not use Extended BASIC all that much so I have never bothered with that. The console has an SVI Quickshot 1 joystick connected to it through a dual joystick adaptor. The video output goes to a monitor interface (one of my design) which then goes to a Wang monitor and a pair of loud speakers. Plugged into the I/O port is a mini-PE system with three boards stacked on each other. The bottom board has a single RS232 interface (which is why I use a serial printer so that it can be used on both my systems) and the 32K memory expansion. The middle board is an AT disk controller with my modifications to make it more reliable. It is powered by an external power supply and so has some heat sinking aluminium attached to it. The top board contains a RAMdisk and clock. There are 16 of 32K byte chips to give 512K bytes of RAMdisk memory, which gives 2040 sectors of disk space. This I usually divide into 3 pseudo disk drives and call them DSK5 (600), DSK6 (720) and DSK7 (720). The top board is also powered by an external power supply. Plugged into the right of the mini-PE system is a speech synthesizer.

This system started to give problems some time ago. The problem was not predictable and would appear to come and go. My initial reaction was that the plug between the mini-PE system and the console were not making good contact. I replaced this connector. The problems continued. I put an external power supply on the disk controller board. This seemed to help for a while but problems continued. The RAMdisk would cease to work during our Regional Group Meeting so I would take it off. This would appear to help for a while. The disk controller would stop working with Extended BASIC. Changing the Extended BASIC cartridge and cleaning the contacts did not help. Turning all power on and off in various orders would sometimes clear it. Slowly and inevitably the problems were getting worse. I suspected the 32K memory expansion and changed the circuitry around it and the EPROMs in the mini-PE system. I suspected the floppy disk drives at various times as one of them would seem to stop working. A very frustrating time indeed. I finally decided that I had to take the TMS9901 and 74LS245 chips off the disk controller board and put them on sockets so I could try other chips. Having done all that, I found that all the chips were working so in desperation, I decided to try another diagnostic route.

For another console, I wrote a little program to show a fault in the processor developing. This processor worked well when cold but as it warmed up it could no longer work out functions correctly. The program is as follows:

```
100 FOR I=1 TO 16
110 CALL SCREEN(I)
120 A=LOG(I)
130 PRINT I;EXP(A);A
140 NEXT I
150 GOTO 100
```

I have put each statement on its own line. This program will run in either BASIC, but in Extended BASIC you could put all except the last statement in one multiple statement. What the program does is to change the screen colours through all the range of colours (16) at the same time it works out the log of the integers from 1 to 16. Then a table of 16 values are printed out. If the processor is working properly the first two numbers in each row should be the same, followed by a number with a lot of digits, which is the log of the first number. Once you get used to the flashing screen it is easy to see if all is working well. This program provides a simple test that a console is working correctly and I often run it for extended periods on a newly repaired console.

I decided to remove the disk controller board, leaving the 32K memory expansion to see if the problem was in the disk controller board or the 32K memory expansion board and its interaction with Extended BASIC. I typed in the above program and tried to run it. It hung! The screen just went black. Very interesting! I took off the mini-PE system and tried again as with Extended BASIC and the 32K memory the program resides in the 32K memory. Taking this away and the program will reside in the VDP memory. The program performed exactly the same! Oh no, not a VDP memory fault all this time! Sure enough, when I put on the console tester it found a VDP memory error and gave out the character "@". This character has an ASCII code of 01000000 which indicates that the memory chip which stores the second most significant bit has a problem. Obviously it only has a problem over some of its address space as there was no sign of problems in the screen displays. The disk controller uses VDP memory at the high address end of the memory and this must have been where the bad memory bits were. Anyway, I looked at the circuit diagram, identified U207 as the culprit, removed that chip, replaced it with another one and all is better. I have been running the system with all boards restored while I have been typing in this article and listening to the election results and it is behaving beautifully.

It just goes to show that you can never take anything for granted. That console had been behaving so well I thought. It also demonstrates the difficulty of identifying intermittent faults. If you find the same types of faults occurring to you, try running a console tester for a few hours.

***** END OF ARTICLE *****

TREASURER'S REPORT

by Cyril Bohlsen

At the time of writing this report there are still some members who have not renewed their membership. If you wish to remain a member, you know what to do!

Income for previous month	\$ 1967.00
Expenditure for previous month	\$ 503.18
Profit for the month	\$ 1463.82

This profit is mainly due to membership renewals.

On behalf of our Secretary,
Let me welcome our two new members :-

Jim Stylianou of Smithfield NSW
Anneliez Thom of Ermington NSW

May you have a long and enjoyable association with the club.

STOR MOR - A REVIEW

by JIM PETERSON

Quite a few years ago, shortly after Texas Instruments abandoned ship, I invested in a PE Box with a 32k card. I had been working on a program that generated a lot of strings internally, and used up more memory than I had available. Now that I had those monstrous megabytes of extra 32k available, I loaded that program, ran it - and got a MEMORY FULL error! I was immediately on the phone to the Texas Instruments technical people, and learned the sad news - even with the extra 32k available, in Extended Basic the TI99/4A can only store string data in the console's memory. To me, that has always been one of the two weaknesses of our favourite computer - the other being that 28-column screen that makes it look like a child's toy.

If you do not have the 32k card, programs are loaded into VDP RAM in the console. Any strings that you load into the program from a cassette or disk file or from DATA statements in the program, or that the program execution generates, must also fit into that memory. If you do have the 32k, the program is loaded into the 24k of it called "high memory"; the other 8k of "low memory" is reserved for assembly routines. Strings are still stored in the 12k of VDP RAM or "stack" in the console. If you are not using strings, the VDP RAM is largely unused; if you do not have links to assembly, the low memory is unused; and since most programs are far less than 24k in size, much of the high memory is unused. The TI99/4A has plenty of memory - it just is not distributed efficiently. Even a 640k PC has only 64k available for Basic programs. I have never run short of memory when writing a TI program, but I have several times been frustrated by lack of string storage memory.

Finally, Bruce Harrison has done something about this problem, and he has done his usual thorough job. His program checks to see how much high memory remains unused and then pokes strings into it, just as you would load an array. For instance, in Extended Basic after opening a file you might execute-

```
FOR J=1 TO 10 :: LINPUT#1:M$(J):: NEXT J.
```

With Bruce's routine you would use-

```
FOR J=1 TO 10 :: LINPUT#1:M$ :: CALL LINK("PUTHI",M$,J)
:: NEXT J
```

In Extended Basic you could then write-

```
PRINT M$(8)
```

With STOR MOR you write-

```
CALL LINK("GETHI",M$,8):: PRINT M$.
```

Before performing those links, you must first tell the computer how many strings to accept, by doing a CALL LINK K("SETHI",X), where X is the number. To find out how many bytes are available, you can CALL LINK("AVHI",X). Repeating the call to SETHI will wipe out everything you have stored so you can start over.

Just in case you do write such an immense Extended Basic program that it does not leave space in high memory for strings, Bruce has also provided a routine to store strings in low memory. It takes up only 1000 bytes, leaving about 6000 available for storage. It works in the same way except that you link to SETLO, PUTLO, GETLO and AVLO. You cannot use both high and low memory for storage in one program - but you still have that 12k available in VDP RAM.

You can also store numeric data, by converting it to strings. There are still other features, including some unique error trapping methods, and routines to save even more memory by preloading the assembly. The instruction file explains everything clearly. This program has everything I could have thought of asking for, plus things I would never have thought of.

The disk contains source code, object code and demo programs for both the high memory and low memory storage programs as well both preload programs. It also contains the instruction file, a program to print the instructions, and Tod Kaplan's ALSAVE so that you can imbed the assembly into your program for instant loading.

And for all that, Bruce is asking the princely sum of \$6, which includes S&H. Don't you wish we could buy TI programs at PC prices? The address is-

Harrison Software
5705 40th Place
Hyattsville MD 20781

***** END OF ARTICLE *****

LEARN TO KNOW YOUR TI LESSON 4

with Percy Harrison

This month you will familiarise yourselves with the arrow keys, the FCTN key and the DEL key.

The arrow keys are used with the FCTN key in moving the cursor around in the line currently being worked on. Characters in the line are not affected by the cursor moving over them. Whenever the cursor stops, you can type in new characters, replacing the old ones. When all is satisfactory, the line can be entered in the computer by pressing ENTER.

The deletion and insertion of characters in the current line are a little more tricky. The DEL and FCTN keys are used for DELETE, and are explained in this lesson. The INS and FCTN keys, used for INSERTING will be explained in Lesson 6.

LESSON 4 SPECIAL KEYS

THE FCTN KEY

Find the FCTN key. "FCTN" means "function."

The FCTN key is a "helper" key. It helps other key:

to fix errors in your typing
to stop a program that is running.

THE ARROW KEY

Find these keys: FCTN

left arrow (on the S key)

right arrow (on the D key)

Now hold down the FCTN key and press the right arrow key:

The cursor moves right one space.

Now hold down both keys:

The cursor runs to the right.

Do the same with the FCTN and left arrow keys.

FIXING ERRORS

The "arrow keys" help you fix errors in your typing.

Type: 10 REM ZRAGON (do not press RETURN)

Hold down the FCTN and left arrow keys to move the cursor (the flashing square) over the "Z".

Now type a "D".

Now the line is correct, reading:

10 REM DRAGON

Press ENTER to store the correct line in memory.

REPEATING A KEY

Hold down the H key. You get a row like this:

HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH

This works for most keys.

Try holding down: the space bar
the ENTER key
the period key.

Repeating a key is useful when drawing pictures.

Assignment 4A:

- 1. Type a line with your name in it, mis-spelling your name on purpose. Then use FCTN and the arrow keys to fix the line. When you have finished, press ENTER to enter the line.
- 2. Draw a "smiley face." Use the FCTN and arrow keys. Hold down a key when making part of his mouth.

THE STRIP OVERLAY

A special strip of plastic came with your computer.

The strip has words printed along it:

DEL INS ERASE CLEAR BEGIN PROC'D AID REDO BACK QUIT

It belongs in the slot just above the number keys. Put it there now and leave it there whenever you are doing these lessons. The words help to remind you of some special things the keys do.

- What key is below DEL on the strip?.....
- What key has a red dot?.....
- What key has a grey dot?.....
- What key has a yellow dot?.....

In these lessons we will study three of these words: DEL, INS and CLEAR.

THE DELETE KEY

The DEL key is used with the FCTN key to erase characters.

Type this: 10 REM CAAT (do not press ENTER yet)

Too many "A's" in the CAT.

Move the cursor over one of the A's.

Hold down FCTN and press DEL. (DEL is the "1" key.) The "A" disappears.

10 REM CAT

Press ENTER to enter the line into the program memory.

What happens if you hold down the FCTN and DEL keys?

Assignment 4B:

- 1. Practice using the FCTN, arrow and DEL keys.

Type this:

10 REM WIZZARD (fix it to "WIZZARD")

Type and fix this:

10 REM TTIIGGEERR (MAKE IT "TIGER")

Next month we will begin to look at input statements and string variables but for the time being the lessons will still be very basic.

ANSWER TO LESSON 3

Assignment Question 3-6

10 REM BIRDS
15 CALL CLEAR
20 PRINT
22 CALL SOUND(100,1000,10)
25 PRINT " ---0---"
30 PRINT
40 PRINT
42 CALL SOUND(150,900,10)
50 PRINT " ---0---"
60 PRINT
70 PRINT
72 CALL SOUND(100,1100,15)
80 PRINT " ---0---"

***** END OF ARTICLE *****

VINCENT'S CORNER

Here is another program. I hope you like it.

All the best,
Vincent Maker

100 REM BY VINCENT MAKER
110 CALL CLEAR
120 PRINT "YOU'RE WALKING DOWN MAIN STREET IN AUSTRALIA."
130 PRINT "YOU SEE 2 THINGS IN THE PATHWAY; A RING AND \$100. YOU CAN GO SOUTH OR TAKE THE MONEY AND THE RING. IF YOU WANT TO TAKE THE MONEY ENTER 1."
140 PRINT "IF YOU WANT TO GO SOUTH ENTER 2."
150 INPUT A
160 IF A=2 THEN 280
170 PRINT "YOU TAKE THE 2 THINGS AND CONTINUE WALKING DOWN THE STREET. YOU HEAR SOME FOOTBALL ON THE T.V IN A SHOP. DO YOU WANT TO KNOW THE "
180 INPUT "SCORE(Y/N)?:B\$
190 IF B\$="N" THEN 280
200 S=INT(RND*30):: T=INT(RND*30)
210 PRINT "IT IS ST GEORGE";S;" TO PARRAMATTA";T
220 PRINT "YOU CONTINUE WALKING DOWN THE STREET UNTIL YOU COME TO BRIAN SMITH THE ST GEORGE COACH. DO YOU WANT TO TALK TO HIM ABOUT THE GAME?"
230 INPUT "Y/N?":C\$
240 IF C\$="N" THEN PRINT "HE TELLS YOU TO GO TO THE GAME AND ASKS YOU IF YOU WOULD LIKE TO GO?"
250 PRINT "YOU TELL HIM YOU WOULD LIKE TO GO TO THE GAME."
260 PRINT "THE TWO OF YOU GO TO THE GAME AND THE DRAGONS END UP WINNING 50-41."
270 END
280 PRINT "YOU WALK SOUTH DOWN THE FREEWAY AND END UP WISHING YOU HAD NEVER MOVED IN THE FIRST PLACE."
290 PRINT " S*U*C*K*O "
300 END

***** END OF ARTICLE *****

REGIONAL GROUP REPORTS

Meeting Summary For MAY

Banana Coast	09/05/93	Sawtell
Central Coast	08/05/93	Saratoga
Glebe	06/05/93	Glebe
Hunter Valley	08/05/93	
Illawarra	10/05/93	Keiraville
Liverpool	07/05/93	Yagoona West
Northern Suburbs	27/05/93	
Sutherland	21/05/93	Jannali

BANANA COAST Regional Group (Coffs Harbour Environs)

We never miss meeting at Kerry Harrison's residence 15 Scarba St. Coffs Harbour, 2 pm second Sunday of the month. Visitors are most welcome. Contact Kerry 52 3736, Kevin 53 2649, Rex 51 2485 or John 54 1451.

CENTRAL COAST Regional Group

Regular meetings are normally held on the second Saturday of each month, 6.30pm at the home of John Goulton, 34 Mimosa Ave., Saratoga, (043) 69 3990, Contact Russell Welham (043)92 4000.

GLEBE Regional Group

Regular meetings are normally on the Thursday evening following the first Saturday of the month, at 8pm at 43 Boyce Street, Glebe. Contact Mike Slattery, (02) 692 8162.

HUNTER VALLEY Regional Group

The meetings are usually held on the second Saturday of each month at members homes starting at 3:15 pm. Check the location with Geoff Phillips on (049) 428 176. Note that after 9:00 pm this number is used for the ZZAP BBS which includes TI-99 information. Geoff.

ILLAWARRA Regional Group

Regular meetings are normally held on the second Monday of each month after the TISHUG Sydney meeting, except January, at 7.30pm, at the home of Geoff & Heather Trott, 20 Robsons Road, Keiraville. A variety of activities accompany our meetings, including Word Processing, Spreadsheets and hardware repairs. Contact Lou Amadio on (042) 28 4906 for more information.

* LIVERPOOL Regional Group *

Regular meeting date is the Friday following the TISHUG Sydney meeting at 7.30 pm. Contact Larry Saunders (02) 644-7377 (home) after 9.30 pm or at work (02) 708-1987, Liquorland, Yagoona for more information.

*** ALL WELCOME ***

7TH MAY 1993	*****
My Place	* Should have the*
34 Colechin St	*SOUND FX program*
Yagoona West	*****

11th June, 1993	*****
My Place	* Picasso and *
34 Colechin St	*Utilities for it*
Yagoona West 2199	*****

Bye for now Larry
Liverpool Regional Co-Ordinator

NORTHERN SUBURBS Regional Group

Regular meetings are held on the fourth Thursday of the month. If you want any information please ring Dennis Norman on (02)452 3920, or Dick Warburton on (02) 918 8132. Come and join in our fun.
Dick Warburton.

SUTHERLAND Regional Group

The March meeting saw the return of all of our regular members, including Kevin Taylor who has had other commitments for the past few meetings.

The evening included a review of the latest Club software and some interesting reading from the U.S. in the Micropendium magazine. Derek and I also demonstrated the paste-up of the club magazine to other members, including some experimentation with large fonts for the magazine headings. Then it was back to the lounge room to have a look at Derek's 4WD video.

Regular meetings are held on the third Friday of each month at the home of Peter Young, 51 Jannali Avenue, Jannali at 7.30pm. Peter Young

MAY MEETING - 1st MAY

This will be our first all day tutorial for the year. Users will be setting up some of their gear by mid-morning and will continue until the middle of the afternoon or when we have all had enough. Alf Ruggeri will bring a tutorial on the TIPS capabilities. For details see the April issue of the TND. Peter Schubert, as a follow-on from the April meeting, will be giving a tutorial/demo on the latest hardware available in the IBM world. Judging from what he mentioned at the last meeting the advance in technology is utterly amazing. Imagine a card selling for under \$20 that will control two floppies, a hard drive, have RS232 & PIO ports as well as a games port! Come and hear/see all about it at the May meeting. As stated elsewhere, Ross Mudie will give a one hour talk on the Telecom 'Group 3 Fax Protocol'. I will have my mini system there which has FunnelWeb 4.40 on Eproms on the ramdisk. It is the only such Mini-System in existence. Others will probably have some interesting items as well.

The cut-off dates for submitting articles to the Editor for the TND via the BBS or otherwise are:

June	9th May
July	13th June

These dates are all Sundays and there is no guarantee that they will make the magazine unless they are uploaded by 6:00pm, at the latest. Longer articles should be to hand well before the above dates to ensure there is time to edit them.

GROUP 3 FAX PROTOCOL

Ross Mudie, who is Telecom Australia's National Specialist on Telecommunications problems involving Facsimile, will be giving a one hour talk on the subject of Group 3 Fax Protocol at the TISHUG all day tutorial on 1st May 1993. This talk will include a brief definition of the modem signals used, the format of the HDLC protocol signals, training and the image signal. A limited number of hand out notes will be available on a first come basis. The talk will be illustrated with the assistance of audio tape recordings and over head projection slides. The preferred timing for this talk will be in the morning.

BEGINNERS EXTENDED BASIC WEEKEND

by Ross Mudie

The Beginners' Extended Basic weekend planned for 17th and 18th April did not proceed. Only 1 person indicated interest in attending, at the meeting of 3rd April, which was the deadline (see April TND, page 23).

I have not received any feedback from the beginners in TISHUG about the article series that I commenced, so I have shelved this series for the present.