Southwest Ninety-Niners Newsletter

contributed by

- Tom Wills -

SW99ers User Group President of Record

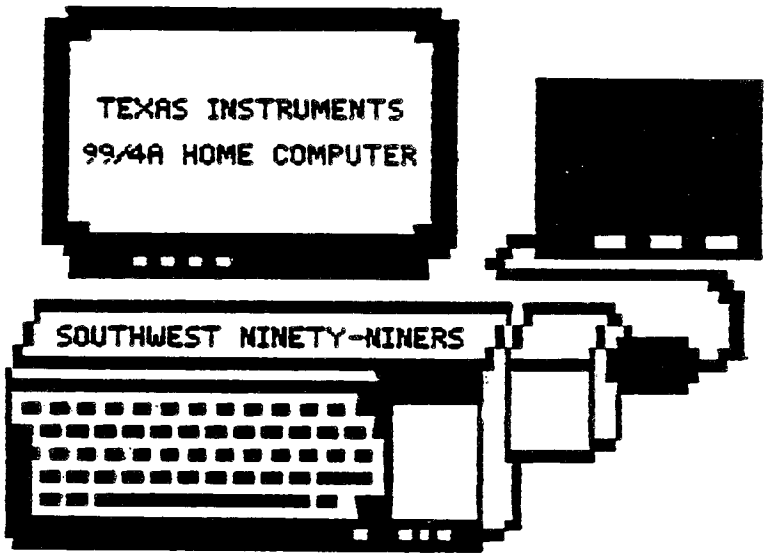
compliments of

TI99ers On-Line User Group

www.ti99ers.org

MARCH 1988

P.O. Box 17831 Tucson, AZ 85730



ATTENTION MEMBERS

Next Meeting: March 1, 1988 at 7:30pm. Location-Tucson Fire Department Training Center on Ajo Way just west of Park.

PLEASE NOTE!!

April 9th, we will be meeting at Pima Savings Broadway & Camino Seco Branch at 1pm. We will continue to meet there until we find a more central or better place. Please call an officer, if you have a suggestion.

Geneve Users Workshop: Second Tuesday of each month at 7:00pm (March 8th). Ed Hallett's home 5600 S Country Club #64 - 889-5525.

TI Users Workshop: 3rd Tuesday of each month at 7:30pm (March 15th). Bring all your TI-99/4A questions and problems to the Mathis Home - 5941 E 26th - 747-5046

Advanced Languages Workshop: 4th Tuesday of each month at 7:30pm (March 22nd). Includes: FORTH, A/L, etc. Rod Stallard's Home - 7575 E Logan - 745-6071

UPCOMING EVENTS

The demonstrations for the next meeting include more Assembly Language by Dave Wolfson and an overview of "c99" by Dave Ormand.

Our friend from Australia, Geoff Shipton, will be in the United States from March 28th - mid-April. We hope he will attend one of our meetings or Workshops.

We are putting together a group order of TEAC 55BV low power, half height disk drives. Two can be installed in your expansion box without beefing-up the power source. The cost will be $75-85 each. The more ordered, the better the price. Once they arrive we'll schedule a workshop to install them in the PE boxes. There will be an additional cost for the cables, contact Jack about that. If you're interested, get your order to BJ by March 4th (please pay when ordering).

PRESIDENT'S CORNER

Currently the AntFarm is being run on the SouthWest Ninety-Niners equipment. When Ed set up the AntFarm in Jnuary of '87, his objective was to give group members a chance to learn telecommunications. He feels that objective has been accomplished. Until this month Ed Hallett has paid most recurring costs for the AntFarm. He is curently unable financially to continue.

The AntFarm is useful to every member of the SouthWest Ninety-Niners, whether they actually sign on to it or not. Some articles published here are uploaded to the AntFarm by the authors when they have time, allowing me to download them when I have the time. As a result of the maintenance and program rewriting Ed has learned a lot about programming, knowledge he has passed on to many members. Ed downloads many programs from GEnie to put on the AntFarm and gives them to the group library, also. Even if you don't actually use the AntFarm, you are gaining by its existence. The group funds are not now available to help Ed with the recurring costs to run the AntFarm, we are asking each group member to think about the value of the AntFarm and donate what they can to its continued operation. Even if you can't afford to sponsor an entire month, any donation will be appreciated.

Many of us will be attending the Fest West in Las Vegas on the 27th and 28th of February. We will be manning the SouthWest Ninety-Niners booth and the registration booth. We hope to cover the cost of the booth and have enough profit to help out with possible expansion of the disk storage space, memory, and/or recurring costs of the AntFarm.

SouthWest Ninety-Niners Best Newsletter has been published. We will be selling it at the Fest West. If we sell them all we will have a sample available at the March meeting and take orders from members who want them. The cost will be $5 each. This "Newsletter" contains every article written by SouthWest Ninety-Niners members and published in our regular newsletter since we came into existence, plus several articles by members of other users groups. The files for this "Newsletter" take up over 900 sectors of writer files. It is a great reference library all by itself.

In this newsletter you will find a list of the hard cover library items the group has on hand. Due to the size of this library, Ida no longer brings all of it to every meeting. Please let Ida McCargar (294-3024) know if you want to check-out a specific item, so she can bring it to a meeting. Remember, we also have folders of newsletters from other groups.

I have used condensed print to a larger degree than I like to in this newsletter. However, we had several contributions lately and I wanted to get them all in.

BJ Mathis - 747-5046

January 2, 1988

Pamela Elliott
Rt. 1 Box 76
Bosworth, MO 64623

Dear SouthWest Ninety-Niners,

The newsletter I received today inspired me, I guess. BJ asked for volunteers. As an absentee member I am somewhat limited in my ability to contribute to the group, but here goes. I am "pretty good" at Multiplan. Not an expert by any means. But I'm sure I could help some of the members who consider themselves "less experienced". If anybody needs help with something, they can write to me at the above address. My phone number is on the list but I am really hard to reach by phone. Still working two jobs and raising two kids.

It's hard for me to understand why members who live in the Tucson area don't attend the meetings. I would love to attend, but the commute from Missouri is a bit much. Members appreciate what you have! An active group with caring members is a real asset to computer enthusiasts.

Now for the selfish part of this letter. I'm still struggling with FORTH. HELP!

Sincerely,

Pam

Pam Elliott

February's Minutes

1. The Question & Answer period exceeded the ten minutes we had scheduled for it. Although it started slowly, the members warmed up to it. The questions were answered, and in some cases, the questioner was paired with another club member who was skilled in a particular area of concern.

   Q. What are program files and format files?
   A. V80 files are variable up to 80 bytes in length. Ida will provide articles on various types of files and how to access them. (May be put in Newsletter)

   Q. Why won't transliterate work for me, I am trying to transliterate "?" and "@"?
   A. Use of "?" for change causes problems when used within text. Use of @ can also cause problems. Suggest transliterating other characters.

   Q. Are there any public domain Sector Editors?
   A. Disk Utilities, which is FAIRWARE, is a Sector Editor. We don't know of any Public Domain Sector Editors.

2. Treasurer's Report:
   a. At a previous meeting Al Armstrong was asked to work up a cost analysis of the use of the Mathis printer for Group business. The cost was $13+ per month or approximately $158 per year. The group voted to reimburse the Mathis family for the use of their printer retroactive to the first of last year. Jack and BJ plan to obtain another printer, the group's use per month cost should drop to approximately $5 per month. Most of the cost on the current printer is ribbon replacement.

   b. Currently the Group's income from dues doesn't totally cover the cost of newsletters and postage. We may need to consider raising dues in the near future.

3. We will need a place to hold our meetings starting in April.

4. BJ thanked Ed McCullough and his brother-in-law on behalf of the group for making the diskette boxes.

5. Orders were obtained for ten TEAC 558V low power, half height disk drives, to take advantage of a price break.

6. We plan to sell the extra hardware/software/books the group has on hand at Fest-West.

7. Ed McCullough reported on the Fest West committee plans:
   A. At the committee meeting of Jan. 18, we finalized most of the activities we have been planning for Fest West '88 in Las Vegas the last weekend of February.

   a. The price for laminated overlays was set at $3,

   b. Fifty books of SW99ers Best Newsletter at $5 each.

   c. Diskettes of Fairware at $3 each.

   d. Blank disks at 12 for $5.

   e. We will be operating the Registration desk.

   f. Our booth will be adjacent to the Registration desk, so we will be able to operate both areas with the limited number of our group members attending. Some local people will help us from time to time.

   g. Our prices were figured to include the Nevada State sales tax of 5.75% and City of Las Vegas sales tax of .25%, so we could save time and money handling. We will figure the tax from the total sales at the end of the fest.

   h. Our booth cost was $49.

   B. Depending upon the success of our sales, we hope to realize enough profit to pay for our booth and have enough left over to do some upgrading of the AntFarm capability without asking the group to consider using any of our current cash assets.

8. AntFarm discussion:
   Ed Hallett can no longer sponsor the AntFarm. Ed operated the BBS to permit the group members to learn how to use telecommunicating equipment. His original objectives have been met. He feels the group must decide to either take over and expand it or close it.

   A separate phone line was installed in July '87, to permit 24 hour operation. Donations were made to cover installation costs. Recurring costs are: $13.91 per month for the telephone and $14 per month for electricity.

   A motion was approved to obtain 3 months support through donations, solicite additional donations, and after 90 days, re-evaluate the situation. Four months of operating expenses were pledged ($120) by individual group members.

9. Dave Wolfson presented an orientation on Assembly Langage. It was a basic overview, presented in a way that was quite interesting and understandable.

10. Jack Mathis presented an interesting overview of Multiplan, including some examples of how to develop formulas. Jack explained how use of Multiplan saved him some overpayments on a loan, because he was able to cross check the figures of the lending agency.

Ed McCullough, Secretary

SouthWest Ninety-Niners Lending Library

BOOKS

36 TEXAS INSTRUMENTS TI-99/4A PROGRAMS FOR HOME, SCHOOL & OFFICE Turner, Len; Arcsoft 1983
A PROGRAMMER'S GUIDE TO THE BEST OF 99ER. Home Computer Mag.; HCM
BASIC: A SIMPLIFIED STRUCTURAL APPROACH Nelson, Dale E.; Reston 1981
BEST TEXAS INSTRUMENTS SOFTWARE Consumer Guide. 1984
COMPUTE'S BEGINNER'S GUIDE TO ASSEMBLY LANGUAGE ON THE TI-99/4A Lottrup, Peter M.L.; Compute 1985
COMPUTER PLAYGROUND Winter, M. J.; Datamost 1983
FUNDAMENTALS OF TI-99/4A ASSEMBLY LANGUAGE Morley, M.S.; Tab 1984
HOW TO BUILD YOUR OWN WORKING 16-BIT MICROCOMPUTER Tracton, Ken; Tab 1979
HOW TO FEEL AT HOME WITH A HOME COMPUTER. Bitter, Gary; TI 1983
HOW TO USE THE TI-994A COMPUTER Brewer, Bill; Dilithium 1984
INNERMOST SECRETS OF THE TI-99/4A Holcomb, Randy; Patch 1984
INTRODUCTION TO ASSEMBLY LANGUAGE FOR THE TI HOME COMPUTER Molesworth, Ralph; Steve Davis 1983
INTRODUCTION TO TI BASIC Inman, Don; Hayden 1980
KIDS & THE TI 99/4A Carlson,Edward H.; Datamost 1982
LEARNING TI-99/4A HOME COMPUTER ASSEMBLY LANGUAGE PROGRAMMING McCormic, Ira; Wordware 1984
PROGRAMMER'S REFERENCE GUIDE TO THE TI-99/4A Regena, C.; Compute 1983
PROGRAMS FOR THE TI HOME COMPUTER. Davis, Steve; Davis, 1983
PROGRAMMING BASIC WITH THE TI HOME COMPUTER Peckham, Herbert D.; McGraw 1979
SMART PROGRAMMING GUIDE FOR SPRITES Miller, Craig L.; MG 1983
SOURCE User's manual 1983
SOURCE manual 1984/85
STARTING FORTH. Brodie, Lee; Prentice-Hall 1981
TERMINAL EMULATOR PROTOCOL MANUAL(in binder) Texas Instruments
TEXAS INSTRUMENTS COMPUTER PROGRAM WRITING WORKBOOK Turner, Len; Arcsoft 1983
TEXAS INSTRUMENTS USERS ENCYCLOPEDIA Phillips, Gary; Book Co 1984
TEXNET Information Service User's Manual 1981
THE TOOL-KIT SERIES-TI-99/4A Dusthimer,Dave; Sams 1984
THE BEST OF 99ER Home Computer Mag.; Emerald Valley 1983
THINGS TO DO WITH YOUR TI-99/4A Willis, Jerry; NAL 1983
TI EXTENDED BASIC MANUAL(with reference card, product info, manual and addenda sheet) 1981
TI BEGINNER'S BASIC MANUAL (Blue book) 1981
TI USER'S REFERENCE GUIDE (Green book) 1981 (in binder)
TI FORTH MANUAL by Leslie O'Hagan (in binder)
TI-99/4A CONSOLE & PERIPHERAL EXPANSION SYSTEM TECHNICAL DATA MANUAL 1983
TI-WRITER TIPS & TRICKS Corker, Joyce; Boston Computer Society 1986
TI-99/4A PRINTER MANUAL (Mod.#PHP 2500) 1982
TUTOR: Assembly Language Tutorial by Steve Barstad; 1983 (MiniMemory needed)
UNDERSTANDING BASIC Peddicord, R.; (an Albert Handy guide)
USER'S GUIDE TO TI-COMPUTER SOFTWARE, PERIPHERALS, ETC. Consumer Guide; Pocket 1983
USING PROGRAMMING THE TI-99/4A Holtz, Frederick; Tab 1983

MODULES,CASSETTES,DISKS INVENTORY

BEGINNING GRAMMAR module
EDITOR/ASSEMBLER-module, diskettes, user's guide, overlay & addendum sheet
HOME FINANCIAL DECISIONS module
HOUSEHOLD BUDGET MANAGEMENT module
MICROSOFT MULTIPLAN-module, diskettes, user's guide, reference card, overlay
PERSONAL RECORD KEEPING module
PLATO INTERPRETER disks(Reading, math, grammar survey, manual, questionnaire
PROGRAMMING AIDS II ON DISK
RETURN TO PIRATE'S ISLAND module diskette
SuperExtended BASIC module, manuals
TAX INVESTMENT & RECORD-KEEPING module
TEACH YOURSELF BASIC disks
TEACH YOURSELF BASIC cassettes
TI FAIRE 1985--VideoTape VHS
TI FAIRE 1985--VideoTape BETA
TI-99/4A: 51 FUN AND EDUCATIONAL PROGRAMS Schecter, G.M.; 1983. book & cassette
TI-99/4A: 24 BASIC PROGRAMS Casciato, Carol Ann; book & cassette
TI-WRITER WORD PROCESSOR-module, diskette, user's guide, reference card, overlay

PERIODICALS

99'er HOME COMPUTER MAGAZINE v.1#4; v.1 #5; v.1 #6; Nov82 (v.2#1); Dec82; Jan83; Feb83; Mar83; Apr83; May83; Jun83; Jul83; Aug83; Sep83; Oct83; Nov83(v.2,#13)
COMPUTE! Iss.31 v.4#12 Dec82; Iss.37 v.5#6 Jun83; Iss.47 v.6#4 Apr84; Iss.49 v.6#6 Jun84; Iss.54 v.6#11 Nov84; Iss 55 v.6#12 Dec84; Iss.57 v.7#2 Feb85; Iss 58 v.7#3 Mar85; Iss 62 v.7#7 Jul85
COMPUTER TRADER MAGAZINE Jan85
HOME COMPUTER MAGAZINE v.4#1; v.4#2; v.4#3(Aug84); v.4#4; v.4#5; v.5#1; v.5#2; v.5#3; v.5#4; v.5#5; v.5#6
MINI-MAG 99,EXCLUSIVE MAGAZINE FOR TI-99/4A USERS v.1#2; Apr85
MICROPENDIUM v.1#9 Oct84-v.1#12 Jan85; v.2#2 Mar85; v.2#4 May85-v.3#2 Mar86
v.3#4 May86; v.3#7 Aug86; v.3#10 Nov86; v.3 #12 Jan87-v.4 #11 Dec87
SMART PROGRAMMER v.2

MISCELLANEOUS ITEMS IN FOLDERS

ASSEMBLY LANGUAGE INFORMATION (multiple copies for sale)
C. KRACKERSNACKS HINTS
DISKETTES --NEWSDATA INDEX
MISC. TECHNICAL DATA IN FOLDER
TECHNICAL DIAGRAMS IN FOLDER (multiple copies for sale)
USER GROUPS LISTS

THE GRAMULATOR FOR THE TI-99/4A

from Boston Computer Society,
via Cleveland Area 99 Newsletter, Dec'87.

A direct equivalent for the popular, but out-of-production GramKracker has been designed by an engineer in Massachusetts. It's called the Gramulator.

A wire-wrapped prototype was demonstrated to a group in Andover, MA and it performed flawlessly. The Gramulator offers virtually all the features of the GramKracker but is targeted to cost less.

No production Gramulators have been built yet. To go from prototype to production model requires an investment of about $1000. The more made in one batch, the cheaper they will be.

You are invited to respond to this offer if you would consider purchasing this product. Technical questions are welcome. Please write to:

Mark Van Coppenolle
52 Audubon Road, Haverhill MA 01830 (617)372-0336

FEATURES:

It simulates 64k of GRAM and 16k of RAM(in 2 8k banks at>6000->7FFF).

1) You can customize the built-in TI operating system in GROM 0 and TI Basic in GROMs 1 and 2.

2) You can backup your GROM and ROM cartridges to disk to protect your investment and reduce wear on the cartridge port. All TI, Atarisoft and Parker Bros. cartridges can be backed up. (Does not work with MBX)

3) Acts as a "Super Space" cartridge allowing you to run programs requiring RAM at >6000->7FFF (including Myarc's XBII).

4) Allows you to use a customized GROM 0, or 1 and 2 while a cartridge is in the slot. One application is that you can use your own character set with a cartridge like TI Writer.

5) Capable of loading user written GPL code.

6) A total of 80k of memory with lithium battery backup.

The software needed to load and save GRAM and GROM will be built in for instant access. A memory editor, which will be supplied on disk, will allow you to alter and save any program loaded into the built-in GRAM or RAM. User documentation and technical information will be included.

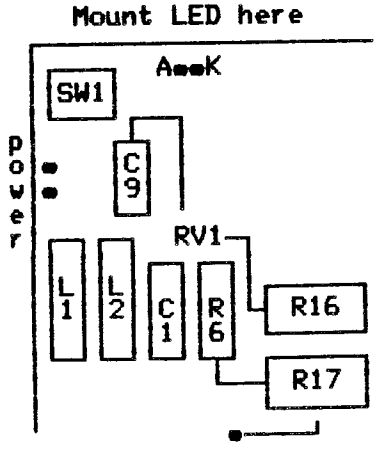
Memory expansion and disk drive are required to take full advantage of the Gramulator.

NEW INFO ON POWER SUPPLIES

by BJ Mathis

As most members will remember, some of the power supplies we obtained from Radio Shack (Cat.#277-1016) had an unsteady 12 volt line, jumping from 9.5-11.5 volts. Those with unstable 12 volt lines had a part number on the board (above the serial number) of 1053214-2, the good ones had a part number of 1053201.

NOW, Ed Hallett has discovered by adding a 300 OHM Resistor (R6 in diagram) and LED to the "Bad" power supplies the 12 volt line became steady. Now, you can use either power supply, however we have been having trouble finding either kind. If you are in a Radio Shack, please check for the power supplies. Please let me know if you find any of them, we still have several members who need them.



TRANSFERING FILES with MULTIPLAN

by BJ Mathis

Each time you build a worksheet, you will save it using the Transfer Save command. At some time you may wish to re-load a file for modification, verification, or to update it. In order to load (Transfer Load) a file, press [T], [L], then type in the name of the file you saved. If you can't remember the exact name of the file press one of the arrow keys without typing in a filename. This will display the first eighteen files on the disk. Use the down arrow key to highlight the file you wish to load. Once you have more than eighteen files on the disk, you will need to take additional steps to read the other filenames. Use the down arrow key to highlight the last filename on the screen, press BACK [FCTN 9], then DOWN ARROW, again. This will give you another screen of eighteen filenames, starting with the one you highlighted. This process can be used again, if necessary.

The Multiplan Manual (pg. 153) says you can obtain the second or third page of filenames by typing in the filename that appears at the bottom of the screen, then press one of the direction keys to display the next screen.

Either method will work. I used Multiplan for two years thinking I had to have a catalog of the disk in order to load any file not appearing on the first screen. I didn't read far enough in the book!

FILES

Dallas Phillips, Kentuckiana 99/4A Computer Society
edited by I. McCargar

Categories of files:

PROGRAM	INTERNAL/FIXED
DISPLAY FIXED	INTERNAL VARIABLE
DISPLAY VARIABLE	

Disk files that can be loaded directly into computer:

PROGRAM	INT/VAR 254	DIS/VAR 163
DIS/VAR 80	DIS/FIX 80	

Any other file format is a data file and cannot be loaded directly but must be loaded from a program already in the computer.Examples:

INT/FIX 108	INT/VAR 128	DIS/VAR 64

If, after loading a program in XB you get a BAD VALUE IN nnn error when you attempt to run it, reload in TI Basic.

If you attempt to load an XB program in TI Basic, you will often get a FOR-NEXT ERROR IN nnn. Attempting to list that line shows a screen of garbage. If the program acts as described above but will not run in either B or XB, list and see if there are meanoingless chars. scattered thru it.If so, someone has probably saved a Basic program in XB. if that has happened, it will not run unless rewritten.

If a PROGRAM file occupies more than 45 sectors and won't load in either B or XB you have to open up extra memory. Do this by typing:
CALL FILES(1) enter NEW enter OLD DSK1.FILENAME enter.
Now, the file should load.

Occasionally, a PROG file will not load in B or XB and gives an I/O ERROR 50 message. The files may be AL programs that must be loaded thru a special loader or thru E/A. After loading E/A press "5"(Run program file);when the prompt DSK1.Filename appears, hit enter and program should load. Some of these programs can be loaded thru TI-Writer option #3

If two PROGRAM files with same name except first ends with _C, the second with _p and they occupy 25 sectors each, they are ARTIST files.

A disk that has a lot of 52 sector PROGRAMs is likely to be Scott Adams Adv. or T.O.D. game but a few of the Adventures use a 54 sector format.

Another PROGRAM format is the 33 sector A.L. file. A few may be 34 sectors. Load with E/A #5 or TI-W #3.

A PROGRAM file that is greater than 45 sectors is a special file, as XB files are automatically changed to INT/VAR 254 but they OLD and RUN the same as normal programs, if memory expansion is used. They normally run only with disk drive. You cannot load I/V 254 Programs from Basic.

DIS/VAR 163 files=ExBasic subroutine in Merge format. They can be merged into a program already in memory. Type MERGE DSKn.FILENAME and enter. --even if there is nothing in memory.

Some Data Base programs use D/V 163 files for data storage.

DIS/VAR 80 files are text files which can be read from screen, edited, and printed via Writer. E/A will also read, edit and print these files from E/A opt."To Edit"

DIS/FIX 80 files are A/L programs which must be loaded thru E/A, Minimem, or by use of a special loader program.

Any other format, e.g. D/F 28, 64 or 254; I/F 32, 63, 84, 127 or I/F 32, 63, 84, 127 will be a file that works in conjunction with another program.

FOUR ON THE FLOOR FOR MY TI TOY

By Steve Lisonbee

The TI99/4A makes a great toy for those that like to tinker with things because there isn't much money lost if it is "smoked". On the other hand it is a great little computer to use for practical things, again partly because of the cost of the console as well as the availability of good inexpensive programs. Even though I like to tinker with my "TI toy" I was always reluctent to do anything on the motherboard. That's why when I read an article a year or two ago in Ryte Data magazine about speeding things up by replacing the 12 Mhz crystal with a 14.318 Mhz crystal I set it aside thinking "that's nice". However after having the good fortune of being able to visit with Ed Hallett of the Southwest Ninety Niners and seeing some of the things he has done with his TI my attitude began to change. When Mike Ballman came out with his 64K inconsole memory it became too much to bear, out came the soldering iron and other tools.

I won't even try to explain how the 64K project is done in this article because of the complexity and length of the instructions. What it does is put 64K of memory in the console (only 32K is useable at present) and remove some of the wait states to give an increase in speed of 46% for assembly programs. There are also instructions available, written by John Guion of the Dallas Users Group, on how to install a switch to switch back and forth between the console 32K and the PEB 32K. The reason this is necessary is that some time critical programs, especially ones using sprites, won't work properly with the inconsole 32K.

The 14.318 Mhz crystal, however, is rather simple to install. Once again a switch is needed to switch back and forth between the 12 Mhz and the 14 Mhz crystal as the increased clock speed interferes with the timing of some programs using sprites as well as the baud rates in terminal emulater programs. All you need to do is remove the 12Mhz crystal and run two wires from the connection points on the circuit board to a single pole double throw switch that pokes out the back of the console. Solder one leg of each crystal to an outer switch contact and solder the other legs of the crystals together along with one of the wires coming from the circuit board. The other wire coming from the circuit board is soldered to the center contact of the switch. I haven't gone into a lot of detail on getting into the computer and safety precautions because if you don't already know those things then DON'T MESS WITH IT, GET SOME HELP. One way to install the switch is to epoxy it to the mother board and drill or cut a hole in the back of the case for the handle to stick out. This way when you need to take the computer apart there won't be any extra wires to undo.

This is all very nice, but what good is it? First of all it is a project for tinkaholics, plus there is an increase in speed. The 14Mhz clock speed gives an increase of 23 to 25% over the 12Mhz clock speed, depending on which language is being used. The inconsole 32K gives an increase of 46% over the PEB 32K in assembly language only. When the two are combined you have four on the floor with a very dramatic increase in speed for assembly programs. For time comparisons I moved or deleted blocks of lines in TI WRITER. Those comparisons follow, with all times being in seconds.

	MOVE BLOCKS		DELETE BLOCKS	
	reg	turbo	reg	turbo
12Mhz=	11.9	8.0	8.4	5.7
14Mhz=	9.8	6.7	7.0	5.0

Sound impressive? Now for the problems. Anytime the basic design of any computer is changed there will be problems with some programs and these projects are no exception. Timing is critical in a lot of programs and as mentioned before there are some progams that will not run with these changes installed, thus the need for the switches. The crystals can be switched back and forth while a program is running with no problem, while the computer has to be shut off or reset when the memories are switched back and forth. The 64K in console memory also draws more power so it is a good idea to beef up the power supply with a 1 amp 12 volt regulator and a 6 amp bridge rectifier. Available at Radio Shack, of course.

If you have the instructions and are contemplating doing these projects remember that you will be working in close quarters and, as always,you do so at your own risk.

USING "IMAGE"

by John Hale

First, type in program F2C and run it, making sure your printer is "ON". Then do the same with F2C/ROT. Note no special printer set-ups were needed, as the program was designed to have five vertical columns with as much spacing between columns as possible. Horizontal spacing was set by the "IMAGE" command. F2C runs on a series of iterations of loops which are self-updating. After F2C ran correctly, I thought I would give the printout a new format running consecutive computations a vertical series in place of the row by row used in F2C.

I was forced to utilize a FOR NEXT loop and a new set of variables to get the print out I desired. There was not a large increase in program length, nor in execution time for F2C/ROT. Both programs were actually formatted on the printouts by altering the variables until everything fit and produced the correct output.

Happily enough, the F2C/ROT format produced a cleaner vertical display than the original F2C.

The use of "IMAGE" commands in your programs can greatly aid in formatting the desired results.

Editor's Note: By changing John's program slightly I managed to make the program slightly more efficient in F2C/ROTjm.

Jack Mathis

```
100 !     F2C
      TEMP CONVERSIONS
     BY JF HALE 12/23/87
   SouthWest Ninety-Niners
110 OPEN #1:"PIO"
120 PRINT #1:TAB(30);"TEMPER
ATURE CONVERSIONS" :: PRINT
#1: : : :
130 IMAGE "  ### F=###.# C "
140 F=1
150 IF F>120 THEN STOP
160 C=(5/9)*(F-32)
170 PRINT #1,USING 130:F,C;:
: F=F+1 :: GOTO 150
```

```
100 !    F2C/ROT
       TEMP CONVERSIONS
      BY JF HALE 12/23/87
    SouthWest Ninety-Niners
110 OPEN #1:"PIO"
120 PRINT #1:TAB(30);"TEMPER
ATURE CONVERSIONS" :: PRINT
#1: : : :
130 IMAGE "  ### F=###.# C "
140 F=1 :: G=97
150 FOR V=1 TO 24
160 FOR H=F TO G STEP 24 ::
C=(5/9)*(F-32)
170 PRINT #1,USING 130:F,C;:
: F=F+24 :: NEXT H :: G=G+1
:: F=G-96 :: NEXT V
```

```
100 !    F2C/ROTjm
       TEMP CONVERSIONS
      BY JF HALE 12/23/87
Modified by Jack Mathis 1/88
    SouthWest Ninety-Niners
110 OPEN #1:"PIO"
120 PRINT #1:TAB(30);"TEMPER
ATURE CONVERSIONS": : : :
130 IMAGE "  ### F=###.# C "
140 F=1 :: G=97
150 FOR V=1 TO 24
160 FOR H=0 TO 4 :: F=H+V
 :: C=(5/9)*(F-32)
170 PRINT #1,USING 130:F,C;:
: NEXT H :: NEXT V
```

BUYER'S GUIDE

The following information is provided as a service to our members. The items listed are for sale by the individuals indicated and are subject to prior sale. The group assumes no responsibility for items listed and makes no claims as to their condition or interface capability with the TI-99/4A computer. Only computer related items will be accepted for publication in this newsletter.

WANTED - Peripheral Expansion System reasonable price - Dan Benavides 578-0588.

Teknika 13" Color Monitor Model MJ-22, RGB/Composite, TI compatible, not Geneve compatible, only 6 months old, $250. Call Jack or BJ 747-5046 or Aaron Traiger 625-0525 (Green Valley).

TI-99/4A Console $35 o.b.o. Call Ejaz 623-8257.

TI-99/4A Console & Home Budget Management $35. Call Darlene Webb 885-0347.

TI-99/4A Console $35. Call John Hedspeth 885-0859 or 745-7253 (work).

TI-99/4A Console, TI Joysticks, Thermal printer, Cassette Recorder, 12" TV(BW), all for $125 o.b.o. Call Paul Garrison 747-3884(Days) or 573-0572(Evenings).