

UPSTATE UPSTATE UPSTATE UPSTATE UPSTATE UPSTATE UPSTATE UPSTATE UPSTATE UPSTATE

OUR NEXT MEETING will be on Thursday
FEBRUARY 21, 1985 at 7:30 pm

THE MARCH Meeting will be
MARCH 21, 1985 at 7:30 pm

PLACE: CAPITAL DISTRICT PSYCHIATRIC CENTER
New Scotland Ave. Next to Albany Medical Center

The program for the FEBRUARY meeting will be as follows:

A talk on FOR NEXT LODPS
A talk about Modems and Terminal Emulator programs
A talk on Assembly Language

A NOTE to other Users Groups: The articles printed in the Upstate Newsletter may be reprinted if proper credit is given to the author and to the Upstate New York 99/4 Users Group.

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The Users Group continues to settle down to a group of hardcore TI-99 devotees. If you own one then you are in good company and can still find plenty of help and consulting. More people are upgrading their systems to add memory and a disk drive. The 49'ers may have won the Super Bowl, but we still say: "G O 9 9 ' e r s."

Thanks to Stu Doling and the rest of the program committee, the monthly meetings are much better organized and have topics whose content ranges from simple to advanced. If you want to participate or if you have a topic that you would like to see on the agenda for a future meeting, talk to Stu before or after one of the meetings.

ITEM #1:

If you have an EXTENDED BASIC (XB) module and a disk system, then there is a powerful tool available to aid you in debugging and modifying programs. From the old TI "Programming Aids" series are three programs that can be used in sequence to produce a cross reference of all arrays, variables, keywords, functions, subprograms and line references in a program.

First you save your program in MERGE format using the XB module and then consecutively run the programs LINPUT, CREF, and CREFPRINT. The result is a listing which is organized by categories of string arrays, numeric arrays, string variables, numeric variables, BASIC keywords, BASIC functions, subprograms, and line references. Each category contains an alphabetic ordering of items with a listing for each item of all the line numbers (in order) on which the item appears. The "line reference" category has a list of all references to a particular line number which occur on other lines.

The process can take a long time to execute. The CREF program can take 30 to 60 minutes to run for long source programs. The result however can be worth it. If you are modifying an old program you wrote months or years ago, this will provide a nice index of variables which you can turn into a glossary with some handwritten annotations. The line reference category is especially valuable in that it tells you how many paths there are leading to a specific line and where those paths originate. The line reference listing tracks all THEN's, GOTO's, GOSUB's, and ON ___ GOTO's.

The instructions for the CREF program tell you to execute it from TI BASIC and to precede the loading and execution with CALL FILES(2) and NEW. This is done because XB and a third disk file channel take up console ram memory as overhead and limit the size program that you can cross reference. If you have the MEMORY EXPANSION unit, then I have found that it is better to run CREF from XB. That gives you about a 25% increase in execution speed for CREF and lets you operate on a longer source program.

ITEM #2:

On the surface it appears that you are limited to 80 columns using the TI-WRITER module. If you use the FORMATTER, you can get 132 columns of output. Just set the right and left margins that you want using the ".LM" and ".RM" commands. Set your printer at condensed print and then run the text file through the FORMATTER. If your printer supports condensed print and takes wider than standard 8.5" width paper, then you can get even more than 132 characters per line.

GEMINI 10X PRINTER HINT

From Bob Hannaford

The GEMINI 10X and some other printers have a download ram which allows the operator to design and print special characters. The following five line program (less REM statements) opens the parallel output port and programs the GEMINI 10X printer to print slashed 0's instead of it's customary open zero. All other characters will print normally.

```
100 OPEN #1:"PIO"  
105 REM-LOAD "BUILT-IN" CHARACTERS FROM PERMENANT ROM TO DOWNLOAD RAM  
110 PRINT #1:CHR*(27)&CHR*(42)&CHR*(0)  
120 A*=CHR*(27)&CHR*(42)&CHR*(1)  
125 REM- DEFINE ASCII CODE 48 (CHARACTER ZERO) TO BE SLASHED ZERO  
130 PRINT #1:A*&CHR*(48)&CHR*(0)&CHR*(28)&CHR*(98)&CHR*(0)&CHR*(81)&  
CHR*(8)&CHR*(69)&CHR*(0)&CHR*(35)&CHR*(28)  
135 REM- TELL PRINTER TO PRINT ALL CHARACTERS FROM DOWLOAD RAM  
140 PRINT #1:CHR*(27)&CHR*(36)&CHR*(1)
```

Once the printer is programed it remains in that state until:

1. It receives a control code telling it to use the built-in characters ie: cancel the download command; or
2. The printer is reinitialized by control code; or
3. The printer is reinitialized by turning it off.

By changing program line 130, or adding additional similar lines, any number of special characters can be programmed into the printer to work with any of the ASCII codes normally produced by the standard TI99/4A keyboard. I frequently have need for a descended number 5 which I program into the printer (in addition to the above slashed zero) to be called by the ~ (ASCII CDDE 126). The program is run when the printer is first turned on and may be expanded to contain other more traditional codes such as the emphasized mode or 17 CPI mode. Since this procedure functions with all software the need to include more complicated special character codes, transliterates, etc. into the document to obtain frequently used symbols and characters is reduced.

The REM statements explain the program, however, a short additional discussion of line 130 may be in order since this is the most important line. A*, defined in line 120, tells the printer that you are redefining a character in the download RAM. CHR*(48) defines which character will be redefined. In this case it is the zero (ASCII CODE 48). For the example of the descended 5 mentioned above, this function becomes CHR*(126). CHR*(0) tells the printer to print the redefined character in the top seven pin positions (top seven dot positions). If this is replaced with CHR*(1) the character would be printed with the lower 7 pins and a descended or subscripted character would be printed.

This completes the discussion of the first three string functions in line 130. The remaining functions in the line define the actual new characters that will be formed. This is quite simple and the printer manual should be consulted for a detailed description on how it is done.

ACCEPTING 255 CHARACTERS
IN EXTENDED BASIC

The following program illustrates a method of accepting up to 255 characters from the keyboard in Extended Basic. The normal maximum with "ACCEPT AT" is 28 characters.

The only trick to it is the arithmetic operation in the subscript. With out it only a maximum of 28 characters can be inputted. More than 255 characters can be entered but odd effects will occur.

All the normal "ACCEPT AT" options except (size), seem to work E.G. BEEP, VALIDATE, AND ERASE ALL.

One other thing to be careful of is the edge character which is present when print statements are used. The edge character will cause the ACCEPT AT statement to crash the program.

Try some experiments with the program. You may be able to make some use of it in your own programs.

```
100 ! *****
110 ! *   ACCEPT AT UP TO   *
120 ! *   255 CHARS IN EXT *
130 ! *   BASIC ??        *
140 ! *****
150 !
160 ! FROM AN ARTICLE BY ED
170 ! KENNEDY IN THE AUGUST
180 ! ISSUE OF THE
190 ! CINCINATTI/DATONA
200 ! USERS GROUP NEWSLETTER
210 !
220 !     DISCOVERED BY
230 !     ERIC COSTELLO
240 !     OF T.I.U.P. IN
250 !     WESTERN AUSTRALIA
260 !
270 !
280 CALL CLEAR
290 ACCEPT AT (5,1):A$(0+0)
300 DISPLAY AT(16,1)ERASE
    ALL:A$(0)::GOTO 290
```

Reprinted from ROCKY MOUNTAIN 99'ers Tic Talk January 1984

INCOME TAXES

For those interested, there will be on display at the meeting, a Template to be used with Multiplan, for doing the 1040 form and schedule A. It also includes the income and sales tax tables. For those wanting a copy of this template, bring an initialized disk.