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It is my hope that you find the file of use to you personally – I know that I would have liked to have found some of these files years ago – they would have saved me a lot of time !

Colin Hinson

In the village of Blunham, Bedfordshire.



Diskette Software

Model PHD 5012

Programming Aids III

Programs that provide increased editing power for any program written in TI BASIC or TI Extended BASIC.

■ **CROSS REFERENCE** — Produces a cross reference listing by line numbers for all variables, arrays, keywords, functions, and line number references in a program.

■ **EDITOR** — Allows you to move or delete portions of a program. It also resequences the line numbers of a program and adjusts any line references in the program accordingly.

Designed for use with the TI-99/4 Home Computer, the TI Disk Memory System (TI Disk Drive Controller and TI Disk Memory Drive — sold separately), and the TI Extended BASIC Solid State Software™ Command Module.

As this manual was designed for the U.S. market, the warranty conditions described herein are not applicable in the U.K. The only valid Guarantee Conditions are those set forth in the "Users Reference Guide" accompanying the Home Computer.

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Author: Texas Instruments

Language: TI-99/4 Extended BASIC

Hardware: TI-99/4 Home Computer
Disk Controller and Memory Drive
TI Thermal Printer or RS232 Interface and a
compatible printer
TI Extended BASIC Solid State SoftwareTM Command
Module

Media: Diskette

Programming Aids III increases your productivity as you develop and edit programs written in either TI BASIC or TI Extended BASIC. Cross Reference prints a cross reference listing by line number for all variables, arrays, keywords, functions and line number references in a program. This listing is useful not only in developing your own programs, but it also simplifies analyzing and modifying programs written by others. The Editor program allows you to delete, move, or resequence line numbers within a program quickly.

These programs are time-saving tools when writing or modifying involved programs.

Cross Reference is composed of three programs which produce and print a cross reference listing of any program written in TI BASIC or TI Extended BASIC. The cross reference lists by line number all variables, arrays, keywords, functions, and line number references in a program. A separate cross reference listing is prepared for each subroutine in a TI Extended BASIC program.

Using this program simplifies changing a variable or finding the lines which call a subroutine; the Cross Reference program is an invaluable tool in developing or modifying lengthy programs.

Cross Reference uses three programs--LINPUT, CREF, and CREFPRINT--to manipulate a file that has been saved using the MERGE option available in TI Extended BASIC. When a program is saved using this option, several important events occur. First, a file is created which is readable from a BASIC program. Also, the program is saved line by line in sequential order, rather than the time-of-entry order in which a program is stored internally. In addition, each line is in "packed" format, where each keyword is represented by a single character.

After saving the merged file, the next step in preparing a cross reference is to rewrite the file in INTERNAL rather than DISPLAY format. To do so, run the LINPUT program in TI Extended BASIC. The file prepared in this program is then used in the second step, the collection of the cross reference data. To increase the speed in which the cross reference is created, return to TI BASIC, and run the CREF program. The file prepared by this program contains the cross reference data and is used in the final step of creating the cross reference listing. To print the listing, run the CREFPRINT program.

- STEP 1: If the computer is not already in the Extended BASIC mode, insert a TI Extended BASIC Command Module into the computer. Next press any key to make the master selection list appear. Then press 3 to select TI Extended BASIC.
- STEP 2: If the program for which you wish to prepare a cross reference has already been saved using the MERGE option, skip this step. Otherwise, load the program for which you wish to prepare a cross reference by inserting the diskette on which the program is located into the disk drive (the file diskette), typing

```
OLD DSK1.
```

immediately followed by the filename of the program, and pressing ENTER (for example, OLD DSK1.TIME1). Once you have loaded the program, save it using the MERGE option by typing

```
SAVE DSK1.
```

immediately followed by the filename you wish to use, a comma, and the word MERGE (for example, SAVE DSK1.TIME1,MERGE). Then press ENTER. If you wish to prepare cross references for several programs, load and save all of those programs using the MERGE option before going to the next step.

- STEP 3: To use the first program of the Cross Reference function, remove the file diskette, insert the Programming Aids III diskette, type

```
RUN "DSK1.LINPUT"
```

and press ENTER. When the LINPUT title screen appears, press ENTER to continue. Next remove the Programming Aids III diskette, and reinsert the file diskette. In response to the prompt INPUT FILE?, enter the name of the merged file. Then enter a filename for the output file to be prepared by this program. If you wish to

delete the merged file, enter Y in response to the prompt DELETE FILE (Y/N)? If not, enter N. While the LINPUT program converts your file from DISPLAY to INTERNAL format, the message COPYING . . . is displayed. If you wish to convert another file, enter Y to the prompt CONVERT ANOTHER (Y/N)? If not, enter N, and the LINPUT program stops.

- STEP 3: To use the second program of the Cross Reference function, type BYE and press ENTER to leave TI Extended BASIC. Press any key to display the master selection list. Type 1 to select TI BASIC. Next type

CALL FILES (2)

and press ENTER. Remove the file diskette, and insert the Programming Aids III diskette. To load the second program, type

OLD DSK1.CREF

and press ENTER. Then type RUN and press ENTER. When the CREF title screen is displayed, press ENTER to continue. Remove the Programming Aids III diskette, and insert the file diskette. Then enter the name of the output file you created using the LINPUT program in response to the prompt INPUT FILE? Next enter the filename you wish to use for the output file created by this program. Decide whether you wish to delete the file created by the LINPUT program. If you do, enter Y. If not, enter N.

While the cross referencing is being done, messages are displayed to inform you of the progress. The final step of the cross referencing is saving the data in the output file. The process is complete when the message SAVING . . . SAVED is displayed.

NOTE: If you are referencing a lengthy program, the cross referencing could take as long as 40 minutes.

If you wish to cross reference another program, type RUN and press ENTER. Then enter the appropriate file names and prepare the listing.

- STEP 4 To use the final program of the Cross Reference function, remove the file diskette, insert the Programming Aids III diskette, type

OLD DSK1.CREFPRINT

and press ENTER. Type RUN and press ENTER. When the CREFPRINT title screen is displayed, press ENTER to continue. Remove the Programming Aids III diskette, and insert the file diskette. Enter the current date, using a mm/dd/yy format. Then enter the printer device name. If you are using the TI Thermal Printer, enter TP. If you are using an RS232 Interface and a compatible printer, refer to the RS232 owner's manual for full instructions. Then enter the name of the output file you created using the CREF program in response to the prompt INPUT FILE? Next enter the title you want printed on your cross reference listing in response to the prompt PROGRAM TITLE? Indicate whether you wish to delete the file created by the CREF program. If you do, enter Y. If not, enter N. The listing then begins printing.

When the printing is complete, you may choose to print another listing by entering Y in response to the prompt PRINT ANOTHER CROSS REFERENCE (Y/N)? If you do not, enter N, and the CREFPRINT program stops.

The Editor program provides you with increased power for editing programs written in TI BASIC or TI Extended BASIC. This program can perform three tasks for you. First, the program deletes any portion of a program you specify. Secondly, it resequences line numbers in a portion of a program and adjusts any line number references accordingly. Finally, using the deletion and resequencing capabilities of this program, you can move portions of the code within a program.

Before the Editor program can be used to edit a program, you must save the program using the MERGE option. When a program is saved using this option, several important events occur. First, a file is created which is readable from a BASIC program. Also, the program is saved line by line in sequential order, rather than the time-of-entry order in which a program is stored internally. Each line is in "packed" format, where each keyword is represented by a single character.

- STEP 1: If the computer is not already in the Extended BASIC mode, insert a TI Extended BASIC Command Module into the computer. Next press any key to make the master selection list appear. Then press 3 to select TI Extended BASIC.
- STEP 2: If the program which you wish to edit has already been saved using the MERGE option, you may skip this step. Otherwise, load the program which you wish to edit by inserting the diskette on which the program is located into the disk drive (the file diskette), typing

OLD DSK1.

immediately followed by the filename of the program, and pressing ENTER (for example, OLD DSK1.TIME1). Once you have loaded the program, save it using the MERGE option by typing

SAVE DSK1.

immediately followed by the filename you wish to use, a comma, and the word MERGE (for example, SAVE DSK1.TIME1,MERGE). Then press ENTER. If you wish to edit several programs, load and save all of those programs using the MERGE option before going to the next step.

- STEP 3: To run the Editor program, remove the file diskette, insert the Programming Aids III diskette, type

RUN "DSK1.EDITOR"

and press ENTER. When the EDITOR title screen is displayed, press ENTER to continue.

- STEP 4: Remove the Programming Aids III diskette and insert the file diskette. You may now begin entering editing commands as explained in the "Commands" section of this manual. The first editing command you use, the "OLD" command, designates the file you wish to edit. If you create an error condition, a

message occurs, and you may enter a new command. To incorporate the changes to your program as a result of editing, you must use the "SAVE" command with a filename different from the program you are editing. After using the "SAVE" command, you may either use the "STOP" command to halt the program or the "OLD" command to edit another program.

STEP 5: After stopping the Editor program, use the MERGE option in TI Extended BASIC by first typing NEW and pressing ENTER. Then type

```
MERGE DSK1.
```

followed immediately by the filename you used with the "SAVE" command (for example, MERGE DSK1.TIME2). Then press ENTER.

STEP 6: Finally, to save the program on your diskette, type

```
SAVE DSK1.
```

followed immediately by the filename you wish to use for the edited version of the program (for example, SAVE DSK1.TIME3). Then press ENTER.

These commands are used to edit merged programs. If you issue a command incorrectly, an error message is displayed and you may enter a new command. Each command may be abbreviated to the first three letters.

OLD filename

Reads in a merged program from the diskette to the computer's memory. Only the line numbers are retained.

DELETE from-to

Deletes program lines beginning with the first line number specified and ending with the last line number specified. To delete ten lines beginning with line 20 and ending at line 110, enter DELETE 20-110. To delete one line, enter the same line number for the beginning and ending lines.

RESEQUENCE from-to,starting number,increment

Resequences line numbers beginning with the first line number specified and ending with the last line number specified. The lines in the range specified must not have been changed by an earlier RESEQUENCE command. The starting number you specify is the number used for the first line of the resequenced portion of your program, and the line numbers are incremented by the amount you specify. In addition to changing the line numbers, all line number references in the program are changed.

If you specify zero as the increment, the line numbers are resequenced using the increments already in use. For example, the command RESEQUENCE 600-620,700,0 would change line numbers 600, 605, 608, 610, and 620 to 700, 705, 708, 710, and 720. If the increment had been specified as 10, the new numbers would be 700, 710, 720, 730, and 740.

If you have entered a RESEQUENCE command incorrectly, do not attempt to correct the problem by using the RESEQUENCE command again. Because the actual renumbering occurs when the "SAVE" command is used, begin again with the "OLD" command.

NOTE: The RESEQUENCE command does not check for overlapping or interleaving of line numbers.

HELP

Displays the available commands.

SAVE filename

Saves the file currently being edited. Because the file that was specified using the "OLD" command is read when the "SAVE" command is issued, the filename used with "SAVE" must be different from the one used with the "OLD" command.

STOP

Stops the program and returns to TI Extended BASIC. All edited material must be saved before using this command.