

# **EASY PROGRAMMING WITH THE TI-99/4A**

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## **Software Companion Manual**

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## INTRODUCTION

The cassette tape found in this SOFTEXT package is the Software Companion for the accompanying text, "Easy Programming With the TI-99/4A." This tape contains over forty programs found in the book. In addition, it contains a number of "new" programs not found in the text. These programs have been included to demonstrate some of the advanced capabilities of your home computer.

This software has been designed as a learning aid to accompany the text. To get the most out of the book and the software, we suggest that you take a few moments to read this short instruction manual.

## CASSETTE TAPE TABLE OF CONTENTS SIDE A

### MASTER PROGRAM I

Contains twenty-two programs from the first fourteen chapters of accompanying book. (Approx. loading time 3 min.)

### MASTER PROGRAM II

Contains twenty-one programs from chapters 15-19. (Approx. loading time 3 min.)

## SIDE B

### COLOR ORGAN

Found in Chapter 20 of the book, this program uses the sound and graphic capabilities of the TI-99/4A.

### CITY AT NIGHT

This program creates a starry night sky over a lighted cityscape.

### COLOR PALETTE

Create a third "pseudo" color by combining and alternating pixels of different colors.

### DELUXE JOYSTICK MAZEMAKER

This program uses the joystick to draw graphics with 10 different colors and characters.

### CHECKERBOARD

Creating a colorful checkerboard graphics display.

### MOSAIC

More computer graphics using the multi-color display technique.

## LOADING THE CASSETTE

The TI-99/4A has a built-in program to help you load in programs from a cassette. This is the proper procedure:

1. Make sure that the cassette deck is properly attached to the computer and that both devices are turned on.
2. Press the "1" (one) key to enter TI BASIC.
3. Press down the ALPHA LOCK key located on the lefthand side of the keyboard.
4. Insert the cassette tape.
5. Type OLD CS1 and press the ENTER key. Remember to type 1 (one) rather than I in "CS1".

The computer will then proceed with its loading program. Simply follow the instructions that appear on your display screen. The first program on the tape will be loaded into memory.

The cursor will appear to signal that the program is fully loaded. Type RUN and press the ENTER key. The computer will then begin running the program.

To load MASTER PROGRAM II hold down the FUNCTION key and the 4 key simultaneously. Type OLD CS1 on press the ENTER key. Ignore the instruction to rewind the tape (you want the next program so you want the tape to continue from this point). Press ENTER and follow the remaining instructions on your screen to load the next program.

Since every program on Side B of the tape is loaded individually there is no MENU which will allow you to move quickly from one program to another. Even given the limitations of cassette tape software there is a trick to moving from program to program. With the table of contents and a pencil at your side, run completely through Side B. Take note of the numbers on the cassette counter which will mark the location of the beginning of each program.

Now when you want to move from one program to another follow the loading procedure that begins by pressing the FUNCTION key and the 4 key and typing OLD CS1. If the program you want precedes the program you are in, continue the loading procedure (including the REWIND command) until you reach the beginning of the desired program. If the program you want comes later on the tape, follow the procedure (ignoring the REWIND command) and PLAY to the starting point of the desired program. In either case, skip the RUN command until you reach the program. This same procedure will move you from MASTER PROGRAM I to II and back again on Side A.

If you are unclear about attaching the cassette deck to the computer, or if you are having other loading difficulties, consult the Chapter 2, "Cassette Deck Notes," of the accompanying book or your User's Reference Guide (I-12).

## HOW TO USE MASTER PROGRAMS I & II

The two master programs on Side A contain the major programs found in the accompanying book. Master Program I covers the first fourteen chapters while Master Program II covers Chapters 15-19.

### The MENU Loading System

Master Programs I and II use a convenient MENU loading system. A title screen appears when the program is run. The MAIN MENU follows the title screen. The MAIN MENU lists the programs available. Each program has a number.

At the bottom of the screen, you will see a prompt asking you to select a program number. Simply type in the number of the program you want and press ENTER. The computer will then begin running your program.

### Returning to the MENU

When you are done viewing the program and wish to return to the MENU to select another, simply hold down any key until the program stops and the MENU returns. In most cases, holding down any key automatically returns you to the MENU. There are, however, a few special cases where it will be necessary to press a particular key or enter a specific value or number to return to the MENU. In these special cases, you will see a prompt such as "ENTER A NEGATIVE NUMBER FOR MENU." Simply follow the instructions and you will automatically return to the MENU.

Some programs such as "Diamond Track" run in a continuous loop. They will not stop until you hold down a key.

**NOTE:** If a problem develops while running any of these programs, simply press the FUNCTION key and the "4" key simultaneously. This will break you out of the program. Then type CON, which is the command for continue. The program will resume. If CON does not work, type RUN and the master program will start again from the beginning.

## MASTER PROGRAM I MENU

The following is a list of programs that appear in the menu of MASTER PROGRAM I. For your convenience we have also included the chapters in which they appear. Below each program is the proper method for returning to the MENU.

## Table of Contents and Methods for Returning to the MAIN MENU

1. DIAMOND TRACK (Chapters 5 and 9)

Hold down any key

2. TAB FUNCTION DEMO (Chapter 8)

Press any key

3. SICK ROSE (Version I) (Chapter 8)

Press any key

4. SICK ROSE (Version II) (Chapter 8)

Press any key

5. GOSUB DEMO (Chapter 9)

Press any key

6. ON-GOTO DEMO (Chapter 9)

Enter a value of five

7. ON-GOSUB DEMO (Chapter 9)

Enter a negative number

8. IF-THEN MUSIC (Chapter 9)

Press any key while the pitch is rising

9. READ/DATA: STEP ONE (Chapter 10)

Press any key

10. READ/DATA: STEP TWO (Chapter 10)

11. RESTORE DEMO (Chapter 10)

Press any key

12. DATA COUNTER (Chapter 11)

Press any key

13. FOR-NEXT LOOP (Chapter 11)

14. NESTED LOOPS (Chapter 11)

Press any key

15. A 2nd SIDE OF A TRIANGLE (Chapter 11)

Press any key

16. RANDOM NUMBER DEMO /M (Chapter 13)

Press any key

17. HEADS OR TAILS? (Chapter 13)

Press ENTER

18. NUMERIC FUNCTION DEMO (Chapter 13)

Hold down any key

19. JERICHO (Chapter 14)

Self returning

20. LILI MARLENE (Chapter 14)

Self returning

21. SONAR (Chapter 14)

Self returning

22. SIREN (Chapter 14)

Hold down any key

## MASTER PROGRAM II MENU

### Table of Contents and Methods for Returning to the MAIN MENU

1. CALL COLOR I (Chapter 15)  
Self returning
2. RANDOM-CHAR GENERATOR (Chapter 15)  
Enter a number greater than 16 when the "COLOR SETS?" prompt appears
3. WHITE KNIGHT (Chapter 15)  
Press "R" after choosing colors
4. RUNNER (Chapter 15)  
Hold down a key as the runner reaches the left side of the screen
5. CALL KEY (ASCII DEMO) (Chapter 16)  
Press ENTER
6. CALL KEY II (Chapter 16)  
Press "5"
7. MAZEMAKER (Chapter 16)  
Press "R"
8. JOYSTICK MAZEMAKER (Chapter 16)  
Press "R"
9. SUBSCRIPTED VARIABLES I (Chapter 17)  
Self returning
10. SUBSCRIPTED VARIABLES II (Chapter 17)  
Self returning
11. READ/DATA ARRAY (Chapter 17)  
Self returning
12. DIMENSIONED ARRAY (Chapter 17)  
Enter a new subscript larger than 13
13. TWO DIMENSIONAL ARRAY (Chapter 18)  
Self returning
14. CHECKERBOARD (Chapter 18)  
Press any key
15. VAL FCTN DEMO (Chapter 18)  
Press any key
16. SEG\$ FCTN DEMO (Chapter 18)  
Press any key
17. CALL COLOR II (Chapter 18)  
Press any key
18. STRING GRAPHIC I (Chapter 19)  
Hold down any key
19. STRING GRAPHIC II (Chapter 19)  
Hold down any key
20. PRINTING WITH HCHAR (Chapter 19)  
Hold down any key a message is being displayed
21. LARGE LETTERS (Chapter 19)  
Hold down any key while a letter is being displayed

## HOW TO LIST THE MASTER PROGRAMS

If you want to list a particular program from the MENU, follow this procedure:

1. Hold down the FUNCTION key and the "4" key simultaneously. This will break out of the program.
2. Type the word LIST, followed by a space.
3. On the same line, type the program number followed by three zeroes and a dash.
4. Press ENTER.

Thus, to LIST program number two, simply type:

LIST 2000- (and press ENTER)

For program eighteen, type:

LIST 18000- (and press ENTER)

To stop a listing at any time, hold down the FUNCTION key and the "4" key.

To return to the program, type CON and press ENTER.

If CON does not work, type RUN.

Each program from the MENU is allotted 1000 line numbers. Thus, to prevent the listing of more than one program at a time, you can type the listing command as follows:

LIST 2000-2999

or

LIST 18000-18999

When listing is finished the cursor will reappear. To return to the MENU you must first return to the Title Page. Type RUN, press ENTER and then follow the commands on your screen to return to the MENU.

Since each of the Side B programs is individually loaded you can only look at the listing for the program you are in. Break out of the program and simply type LIST.

For a further explanation of listing procedures on the TI-99/4A, read the chapter "Tools for Building Programs" in the accompanying book.

## THE LINE NUMBERING SYSTEM

The line numbering system of the Master Programs corresponds with the numbering system found in the text. The three digits on the right of any line number will always tell you which program line in the book corresponds to the program line in the software. The left-most number will always signify the program number in the MENU.

Thus, LINE 1744O means

Program 17, Line 44O in the book.

and LINE 622O means

Program 6, Line 22O in the book.

The line lists in the software do not always correspond exactly with those in the book. In some programs, minor changes were made to enable the software to run properly. In others, a line or two has been added. In most cases, these changes are minor and easily spotted.

We suggest you follow the line lists in the book and use the software as a time-saving backup and aid to study. When possible, you should take the time to type in the programs that appear in the book. There is not substitute for hands-on practice.

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EASY PROGRAMMING WITH THE TI-99/4A was originally published by Birkhauser Boston, Inc. in 1983.