

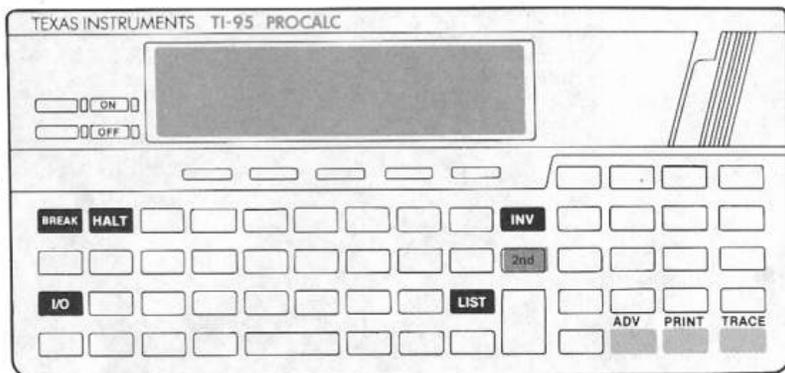
Chapter 6: Using an Optional Printer

This chapter describes how to use the printing functions of the TI-95 after you have connected an optional PC-324 printer, or another suitable printer, to your calculator.

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Location of the Printer Operation Keys

The keys used with the printer are shown in the figure below. Familiarize yourself with these keys and their location on the keyboard.



Printer Menus

Two of the printer operation keys (**I/O** and **LIST**) present menus that allow you to perform some of the printer operations.

The I/O Menu

The **I/O** key displays an **INPUT/OUTPUT** menu. One of the selections on this menu lets you set certain calculator parameters used in printing. If you are using a PC-324 printer, this function is not necessary. The calculator defaults to the parameters for that printer.

```
INPUT / OUTPUT
TAP PRT CIO KW
```

- <TAP> Cassette tape operations (discussed in the *TI-95 Programming Guide*)
- <PRT> Selects **PRINTER SETUP** menu
- <CIO> Call I/O (discussed in the *TI-95 Programming Guide*)
- <KW> Key wait function (discussed in the *TI-95 Programming Guide*)

The LIST Menu

The **LIST** key lets you print lists of items such as data registers and program labels.

```
LIST:
REG PGM LBL ST
```

- <REG> List data registers
- <PGM> List program
- <LBL> List program labels
- <ST> List calculator status

Printer Device Numbers

Because the calculator can connect to different devices through a single peripheral port, each device has a unique device number to identify it. The calculator assumes a particular device number for all printer operations unless you change the number.

Default Device Number

The first time you turn the calculator on, the printer device number defaults to 012, the device number for the PC-324 printer. If you have a PC-324 printer attached, you can use all the printing functions of the calculator without changing the default device number.

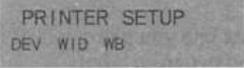
If you do not have a PC-324 printer attached, you can change the device number. The new number is saved even if you turn the calculator off and back on.

Changing the Device Number

If you have a different printer attached, you must use the **INPUT/OUTPUT** menu to change the calculator's printer device number before using your printer.

To change the device number:

1. Determine the device number of your printer.
2. Press **I/O** <PRT> to select the **PRINTER SETUP** menu.



PRINTER SETUP
DEV WID WB

3. Select <DEV> and enter the device number of your printer.

When you enter the last digit, the new device number becomes active and the **PRINTER SETUP** menu returns. You can now use the printing functions of the calculator.

Setting the Printer Format

In addition to setting the printer device number, you can use the **PRINTER SETUP** menu to control the format of printed data. You can specify the maximum number of characters to be printed on each line, and you can specify whether to break after a word at the end of a line if there is not enough room to print all of the next word on that same line.

Setting Line Width

When you first turn the calculator on, the default line width is 24 characters per line, the PC-324 printer setting. If your printer prints more or less than 24 characters on a line, you may want to change the calculator's line-width setting to match your printer. If you change the line width, the new line width is saved, even if you turn the calculator off and back on.

To change the line-width setting:

1. Press **I/O** <PRT> <WID> to select the width option on the **PRINTER SETUP** menu.
2. Enter a two-digit number for the new line width. (The number you enter must be between 01 and 80.)

When you enter the second digit, the new line width becomes active and the display returns to the **PRINTER SETUP** menu.

Setting Word Break

When you first turn the calculator on, the word break feature is off. If you turn word break on, it is saved, even though you turn the calculator off and back on.

These two examples illustrate the effect of using word break.

These two examples illustrate the effect of using word break.

Word break off (default)

Word break on

If you are printing text, such as long alphanumeric messages, you may want to turn word break on to prevent the words from being broken.

To turn word break on, press **I/O** <PRT> <WB>.

To turn word break off, press **I/O** <PRT> **INV** <WB>.

You can use the calculator keyboard to control the printer. In addition to advancing the paper and printing the current contents of the display, you can print an audit trail of calculator operations and their results.

Advancing the Paper

The **2nd** [ADV] key sequence lets you advance the paper in the printer by one line without printing anything. This lets you use the advance function in a program.

Printing the Display Contents

The **2nd** [PRINT] key sequence lets you print the contents of the display. When you use the print function:

- ▶ An alphanumeric message is printed in its entirety, even though only a portion of the message may be visible in the 16-character display.
- ▶ Status indicators and function-key labels are not printed.
- ▶ Some special characters may be displayed but not printed.

Printing Codes

In addition to numbers, letters, and punctuation symbols, your printer may also respond to other codes.

- ▶ Control codes may cause your printer to perform some action, such as setting double line spacing. The PC-324 printer responds to the following codes.

Code 13 produces a carriage return and line feed.
Code 17 activates single spacing.
Code 18 activates double spacing.

- ▶ Special character codes enable you to produce special symbols, such as boxes on certain printers. Other printers may not have this capability.

To use the print function to send any of these codes to a printer, you must first generate the code using the CHR function of the TI-95 alpha mode. Because the alpha mode is used primarily in programming, it is described in the *TI-95 Programming Guide*.

Using the Trace Mode

The **2nd** [TRACE] key sequence lets you turn the calculator's trace mode on or off.

Trace mode is useful when you need a "printing calculator." When trace mode is on, the calculator automatically prints each display as it appears, eliminating the need for you to press **2nd** [PRINT] with each new display. This also produces a hard copy of the inputs and outputs of each function executed.

The trace mode can also be useful in isolating errors in a program. Use of the trace mode for this purpose is discussed in the *TI-95 Programming Guide*.

To turn trace mode on, press **2nd** [TRACE].

To turn trace mode off, press **INV** **2nd** [TRACE].

Using Printer Power for the Calculator

If you have a PC-324 printer connected to the calculator, the printer provides power for the calculator from either the AC adapter or the batteries.

When you see a **P** in the status indicator area of the display, this indicates the PC-324 printer batteries are low and should be replaced.

If you have a PC-324 or another suitable printer attached and properly set up when you use the LIST function, the list is printed as well as displayed. You can print lists of data register contents, status settings of the calculator, stored program keystrokes, and program labels. If you wish, you can stop a listing before it has finished.

Printing Data Registers

To print a list of the contents of a series of data registers:

1. Press **LIST**. The display shows the list options.

```
LIST:
REG PGM LBL ST
```

2. Enter the address of the first register you want to print. If you do not enter an address, the listing begins at register 000 each time you press the **LIST** key.
3. Select **<REG>**.

Beginning with the specified register, the address and contents of each register are displayed and printed as shown in the following sample.

000	4.
001	0.
002	1.234
003	0.
004	-7.89333333

Printing the Calculator Status

To print the current status of the calculator, press **LIST <ST>**.

The calculator prints the current partition settings and each parameter that is not currently set to its default setting. (Parameters that are currently set to their default settings are not printed.)

For example, if you are using the default partitioning and have selected the radians angle mode, the printed result is similar to the following.

```
P1000,R125,F5200
ANGLE MODE = RAD
FLAGS SET = NONE
MODULE = NONE
LAST ERROR=NONE
```

Refer to Chapter 5, "Listing the Calculator Status," for a complete list of the available statuses.

(continued)

Before you can list a program or its labels, you must first load the program into program memory (using the procedures described in the *TI-95 Programming Guide*). Because programs supplied in software cartridges cannot be loaded into program memory, you cannot list those programs or their labels.

Printing a Program

To print a listing of the program currently stored in program memory:

1. Press **LIST** <PGM>.

The display shows:

```
START LISTING AT
1st PC
```

2. To start the listing at the first program step, select <1st>. To start the listing at the current program step (described in the *TI-95 Programming Guide*), select <PC>.

Beginning with the specified step, the calculator prints a program listing. Each line of the listing begins with the program address of the first instruction in the line, as shown in the following sample.

```
0000 LBL XX CLR 20
0006 STO 020
0009 LBL YY INC 020 39
0017 IF< 020 GTL ZZ CLR
0024 STO IND 020 GTL YY
0031 LBL ZZ CLR STO 020
0038 HLT
```

The format of your printed copy may be slightly different, depending on the current setting of line width.

Printing Program Labels

To print the labels of the program currently stored in program memory:

1. Press **LIST** <LBL>.

The display shows:

```
START LISTING AT
1st PC
```

2. To start the listing at the first program label, select <1st>. To start the listing at a particular program label (described in the *TI-95 Programming Guide*), select <PC>.

Beginning with the specified program step, the calculator prints a list of program labels. The address and name of each program label are printed, as shown in the following sample.

```
0023 LBL BB
0041 LBL AZ
0058 LBL AA
0109 LBL P
```

Stopping a Listing

Normally, the printing of a list continues until all items have been printed.

To stop a listing before it has finished, hold down the **BREAK** or **HALT** key until the word **LIST:** reappears in the alphanumeric display.

After stopping a listing, you can perform other calculator operations or restart the listing.