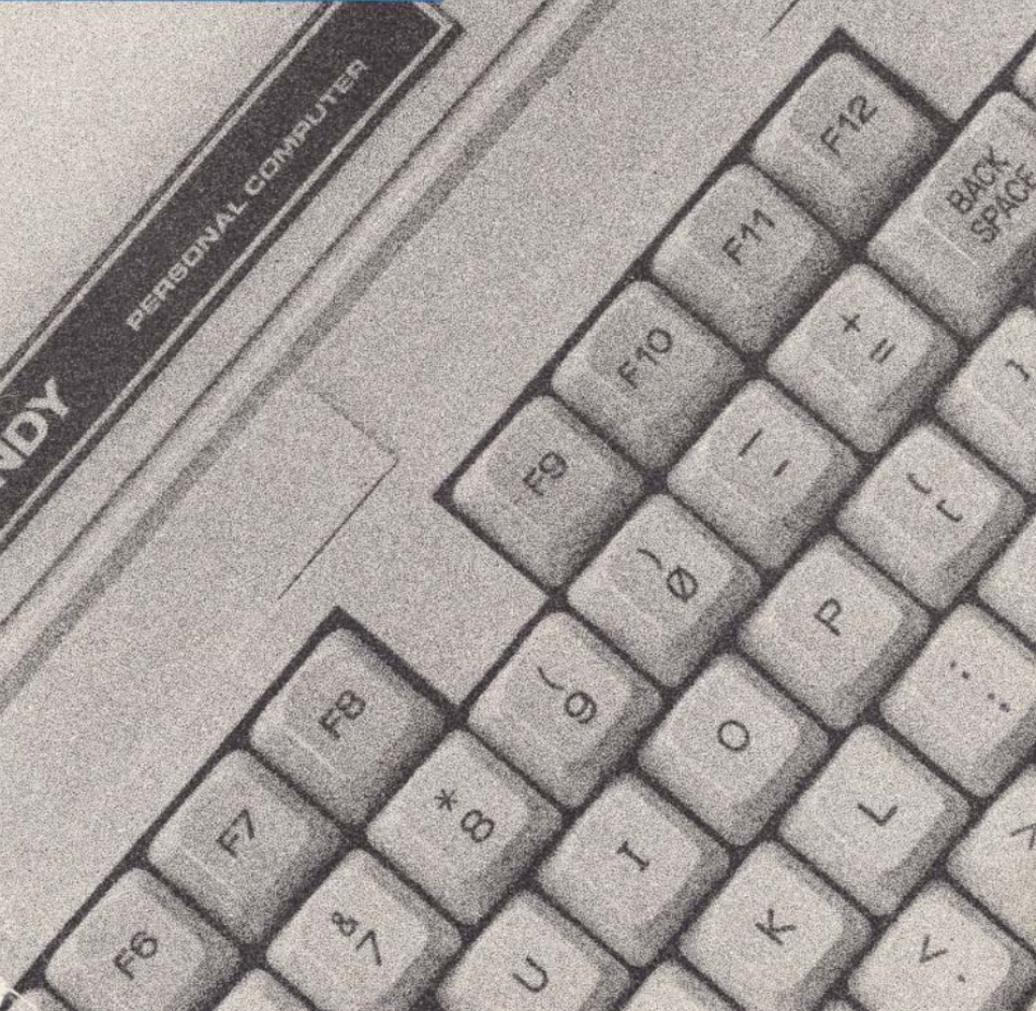




A Guide to the Tandy 1000

- Introduction to the Tandy 1000/
A Tutorial to DeskMate™
- DeskMate, A Reference Manual
- BASIC, A Reference Guide



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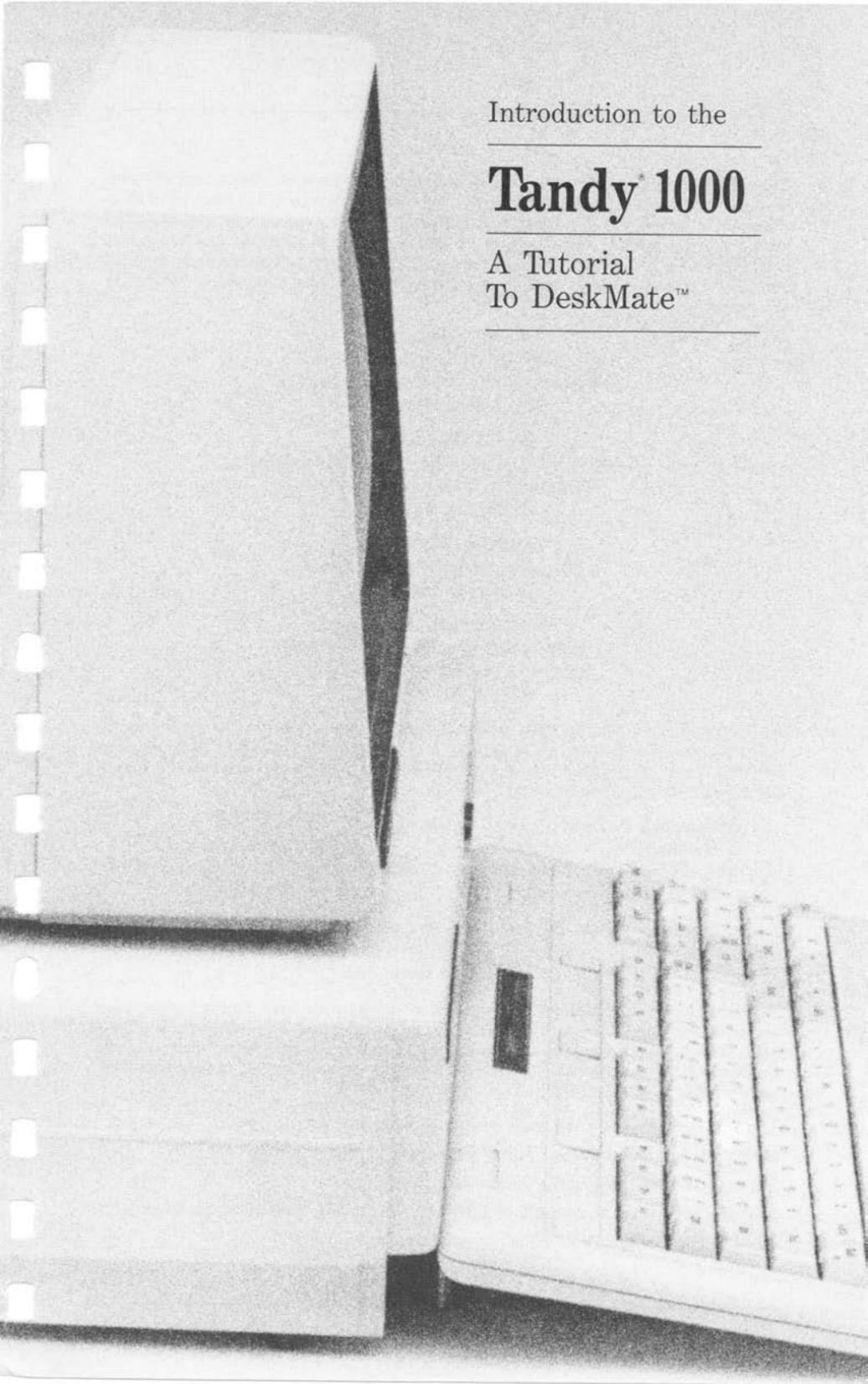
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Introduction to the

Tandy[®] 1000

A Tutorial
To DeskMate™

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Tandy 1000 BIOS

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INTRODUCTION

Included with your **Tandy® 1000** is the multi-purpose **DeskMate™** integrated software package. This powerful, yet simple-to-use combination of hardware and software makes it possible to put your Tandy 1000 to work immediately and makes the perfect desk-top complement.

Your Tandy 1000 package includes:

- The main unit, which contains the CPU with 128K RAM, a 360K disk drive, built-in monochrome and color graphics adapters, a 3-voice sound circuit (for complicated sound and music generation), and a speaker.
- The keyboard, which features 90 keys.
- The MS-DOS diskette with full BASIC.
- The DeskMate diskette.
- *A Guide to the Tandy 1000*, including:
 - Introduction to Tandy 1000/A Tutorial to DeskMate*
 - DeskMate, A Reference Manual*
 - BASIC, A Reference Guide*
- *DeskMate, A Quick Reference Guide*

You can connect your Tandy 1000 to a color monitor such as the CM-2 Color Monitor (Cat. # 26-3212), a monochrome monitor such as the VM-2 Monochrome Monitor (Cat. # 26-3211), or a color television set using the RF Modulator (Cat. # 15-1273).

Note: Some sophisticated software packages using 80-column display, such as DeskMate, require the use of either a monochrome or color monitor.

Increase the memory of your Tandy 1000 with user-installable Memory Expansion Boards. (Memory expansion boards must be Tandy boards.) You can install Tandy Option Boards or any standard PC-compatible input/output (I/O) boards (10 inches or shorter) and add exciting options such as a mouse, a modem, RS-232, networking capability, and more!

You can also add a printer to print information and joysticks for games.

To use the DeskMate telecommunication features you need either the 300 Baud Modem Board, or the RS-232 Option Board and an external modem.

Contained in this tutorial booklet are step-by-step instructions for setting up your Tandy 1000. The sample session, which makes up most of this booklet, is designed to help you become familiar with DeskMate by demonstrating and stepping you through its many features.

To quickly look up detailed information about a specific DeskMate topic, use *DeskMate, A Reference Manual*.

Information about the more advanced features of the Tandy 1000 and its operating system, MS-DOS, is provided in the *BASIC Reference Manual*, the *MS-DOS Reference Manual*, and the *Programmers Reference Manual* for the Tandy 1000. These manuals are all available through your Radio Shack Computer Center or dealer.

Setting Up The Tandy 1000



SETTING UP THE TANDY 1000

Following these instructions are illustrations of each monitor/main unit connection (one with a monochrome monitor, one with a color monitor, and one with a television used as a monitor) and printer configuration instructions.

1. Be sure that all equipment is turned off.
2. Connect any additional equipment, such as a printer or modem. (Refer to the instructions provided with the additional equipment.) See Figure 1.

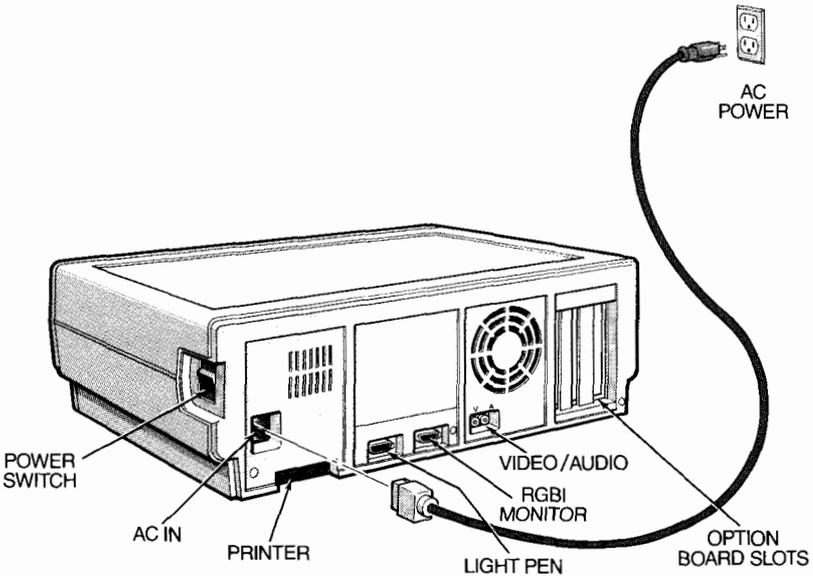


Figure 1

- 3a. **Color Monitor Users:** Connect the monitor cable to the RGBI MONITOR port on the back of the Main Unit. See Figure 2.

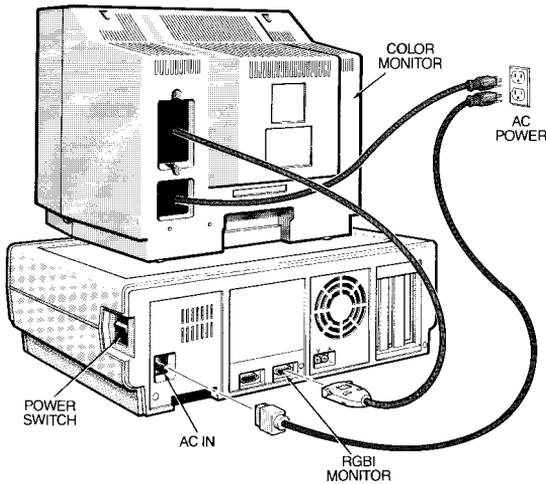


Figure 2

- 3b. **Monochrome Monitor Users:** Connect one end of the monitor cable (provided with the monitor) to the back of the monitor. Connect the other end to the VIDEO connection on the back of the main unit. See Figure 3.

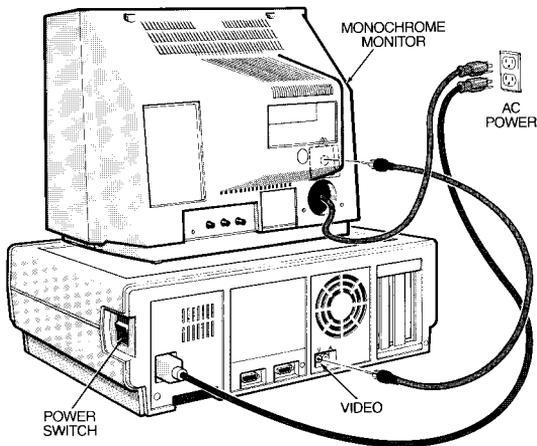


Figure 3

- 3c. **TV Monitor Users:** Connect the coax arrangement to the RF modulator and then to either a cable-ready connection or adapter for VHF antenna hookup. Connect the RF modulator cables to the VIDEO/AUDIO phone connections on the back of the main unit. Set the RF modulator switch to 75 for cable-ready hookup or to 300 for VHF antenna hookup. See Figure 4.

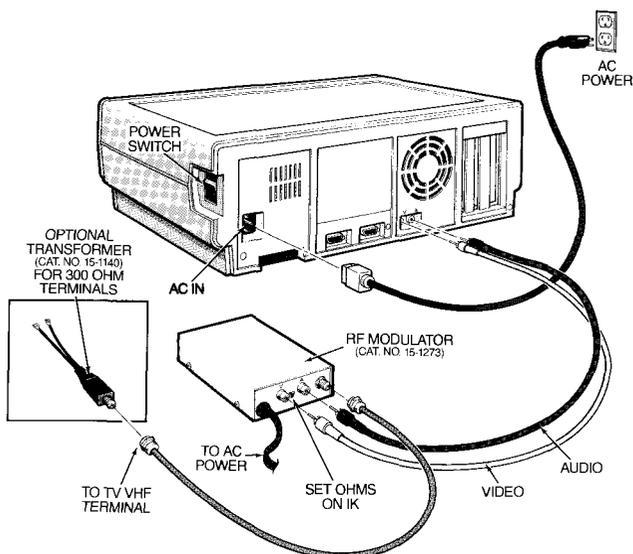


Figure 4

4. Plug the main power cord into the AC IN connector. (See illustrations.) The, plug the other end into a grounded 120 VAC 3-prong outlet.

Note: Electrical interference and power surges can destroy data. Do not use an outlet that powers other heavy equipment.

5. Plug the keyboard cable directly into the keyboard connector on the front of the main unit. See Figure 5.

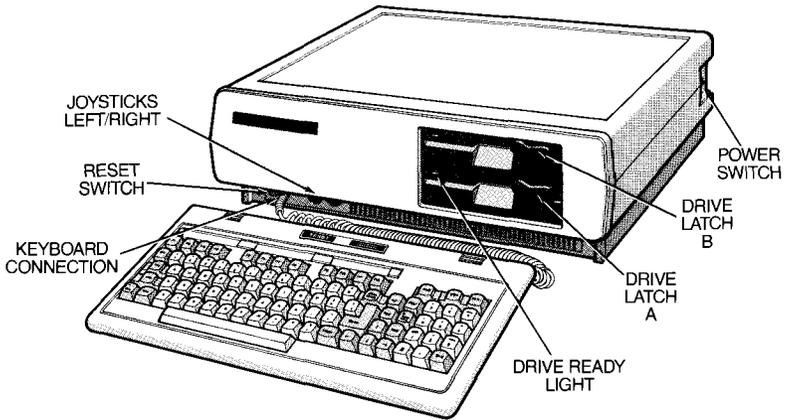


Figure 5

Joystick Note

The **R** and **L** indications on the joystick connectors are only a reference to designate the 2 joystick ports. Some application programs use these ports interchangeably. If you use joystick software, and the program does not appear to function correctly, try reversing the joysticks.

Printer Configuration Instructions

Before starting your application, you must make sure that the printer you are using is set up to work with your Tandy 1000. To accomplish this, find your printer on the list below and follow the steps indicated.

If your Printer is:	Do this:
IBM-compatible (IBM, Epson, etc.)}	No action required
LPV800 DMP120 DMP200 DMP400 DMP420 DMP500 DMP2100	Set NL/CR switch to CR
DWPII DWPIIb DWP410 DWP210	
Other }	Follow Procedure II

Procedure I

1. At the MS-DOS prompt, type **LPINST** **(ENTER)**.

Now, the screen shows:

```
Does your printer automatically linefeed
after a carriage return?
```

2. Press **(Y)**.

When finished, the MS-DOS prompt returns to the screen. The printer configuration procedure needs to be done only once. Now, whenever you run the application, the printer configuration will be done automatically. (The LPINST command builds an autoexec.bat file that is appended to any existing autoexec.bat file.)

Procedure II

1. At the MS-DOS prompt, type **LPINST** (ENTER).

Now, the screen shows:

```
Does your printer automatically linefeed
after a carriage return?
```

2. Press (Y) or (N). If you are not sure about what to answer, run a printout test. If the printer double spaces lines, return to MS-DOS, run LPINST as above, and answer (Y). Again, run a printout to insure the printer is performing as expected.

Note: If you do not want the system to automatically set for your printer (i.e., you change printers frequently), you may manually reconfigure the system by issuing a simple "MODE" command at the MS-DOS prompt.

To turn the extra line feed off, type **lf** (ENTER). At the system prompt, type **mode lfoff** (ENTER).

To turn the extra line feed on, type **lf** (ENTER). At the system prompt, type **mode lfon** (ENTER).

If you reset the computer, the system returns to its default setting, LFON. After you issue the appropriate mode command, your Tandy 1000 is configured to work with your printer.

Using the Tandy 1000



USING THE TANDY 1000

Start Up/Ending Procedures

1. Turn on any peripherals, such as a printer, using the instructions accompanying the peripherals. Center any joysticks you are using.
2. To turn on your computer, press the rocker switch marked POWER. The up switch is ON.
3. The Tandy 1000 powers up in 80 column mode with 200 scan lines. If you wish 40 column mode with 225 scan lines, press (F12). Television monitors require 40 column mode. DeskMate uses 80 column mode.
4. Open lower drive door (Drive A) by rotating the latch into the horizontal position.
5. Insert an MS-DOS system diskette into Drive A, label side up. (Your MS-DOS/BASIC diskette is a system diskette.)
6. Close the drive door by rotating the latch into the vertical position.
7. Press the RESET button. Your computer's memory capacity is displayed in the upper left corner of the screen.
8. After a brief wait, you are prompted to enter the date and time. Use the sample format displayed on the screen to make the proper entry. (If you do not need the date and time, you can press (ENTER) at each prompt.) The system prompt is displayed. Because you are currently using Drive A, the prompt is:

A>

You are now at the MS-DOS command level. We advise that your next step be to make *backups* or copies of both the MS-DOS and DeskMate diskettes. See "Making Backups of System Diskettes" and "Making Backups of Non-System Diskettes."

1. To end a session, exit any program you are currently using and return to the MS-DOS command level.
2. Remove all diskettes. Turning off the power with a diskette still in the drive can cause you to lose the contents of that diskette.
3. Turn off all peripherals and the power switch of your computer.

Using the Keyboard

The Tandy 1000 keyboard is designed for comfort and ease of use. Key placement is similar to that of a typewriter. The keyboard is detached so you can position it on your lap or desktop. On a desktop, you can use the keyboard's flip-down legs to position it at a slight angle to the desk surface. See the following list of special keys and their uses.

BACKSPACE—Moves the cursor back over the previous character, erasing it.

BREAK—Discontinues current operation and returns to the previous level of operation.

CAPS—Locks the alphabet keys into either upper or lower case.

ENTER—Moves the cursor to the beginning of the next line. It also executes a command or program.

HOLD—Toggles a pause in computer operation on and off.

NUM LOCK—Locks and unlocks the numeric keypad. When the NUM LOCK function is on, each key produces the number shown on the lower half of the key. When NUM LOCK is off, each key produces the function or symbol shown on the upper half of the key.

SHIFT PRINT—Prints whatever is currently displayed on the screen.

SHIFT—Operates the same as the SHIFT key of a typewriter. Also, produces the function or symbol on the upper half of the numeric pad keys (only when NUM LOCK is on).

Some keys have a function only when you are using an application program. If so, refer to your application manual for special uses.

Handling Diskettes

Diskettes are sensitive. To avoid losing information, handle them with care.

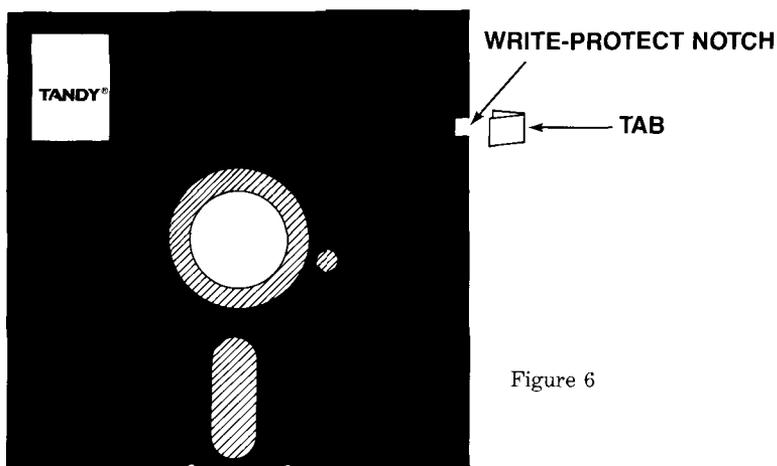


Figure 6

- Do not touch a diskette's exposed shiny surfaces.
- Do not turn the computer on or off while a diskette is in a drive. Doing so can destroy data.
- Do not insert or remove a diskette when you hear the sound of the drive motor and the light on the drive door is on.
- Do not leave a diskette inserted in a drive—either fully or partially—when the computer is off.
- Keep diskettes away from heat, direct sunlight, dust, and magnetic fields (such as transformers, AC motors, magnets, radios, and the computer's display console).
- Do not bend diskettes.
- Do not write on a diskette with a ball point pen or lead pencil. Use a felt-tip pen only.
- Always put the diskette back in its protective envelope after use.
- Store diskettes in an upright position, never in a stack.

Write Protecting a Diskette

With your diskettes you will find foil adhesive tabs. Cover the write-protect notch with a foil tab. (See Figure 6.)

When the write-protect notch is covered, you cannot change the contents of this *master diskette*. In the next section, you will learn how to make copies of the master diskettes.

Making Backups of System Diskettes

One-Drive System

If you have only one disk drive, follow these steps to make a backup of your system diskettes. Your MS-DOS/BASIC diskette is a system diskette.

1. Turn on the computer as outlined in "Startup/Ending Procedures."
2. Insert the *source diskette* (the diskette you wish to copy) into the drive.
3. At the system prompt, **A>**, type: **Format (ENTER)**. The following prompt appears:

**Insert new diskette for drive A:
and strike any key when ready**

4. Remove your source diskette, and insert a blank diskette into the drive.
5. Press any key to begin. A series of dashes appears on the screen. These dashes change to dots as your diskette is "formatted."
6. When the formatting is completed, a prompt is displayed:

Format another (Y/N)?
7. Press **(Y)** to continue formatting as many diskettes as you need. When the last diskette is formatted, press **(N)** at the prompt. The system prompt reappears.
8. Reinsert the source diskette, and type: **Diskcopy (ENTER)**.

9. DISKCOPY prompts you to insert the formatted *target diskette* into Drive A. Insert the newly formatted diskette, and press any key.
10. During DISKCOPY, you are prompted to switch the diskettes several times.
11. When DISKCOPY is completed, the following prompt is displayed:

```
Copy Complete
Copy another (Y/N)?
```

12. Press **(N)** to end the session or **(Y)** to make more backups.

Two-Drive System

If you have a system with two disk drives, the backup procedure for system diskettes is much easier.

1. Turn on the computer as outlined in "Startup/Ending Procedures."
2. Insert your *source diskette* (the diskette you wish to copy) into Drive A and your "target diskette" (your blank diskette) into Drive B (the upper drive).
3. At the system prompt, **A>**, type: **Format B: (ENTER)**.
4. Press any key to begin. When completed, the following prompt appears:

```
Format another (Y/N)?
```

You now have a formatted diskette which can be used as a data diskette in Drive B.

5. Select **(Y)** to format more diskettes or **(N)** to end the formatting procedure and return to the system prompt.
6. At the system prompt, type: **Diskcopy A: B: (ENTER)**. The following prompt is displayed:

```
Insert source diskette into Drive A:
Insert formatted target diskette
into Drive B:
Press any key when ready
```

7. Press any key to begin. When the backup is complete the next prompt appears:

```
Copy Complete
Copy another (Y/N)?
```

8. Press **(Y)** to make more copies or **(N)** to end the session and return to the system prompt.

Making Backups of Non-System Diskettes

One-Drive System

If you have one disk drive, follow these steps to make a backup of your non-system diskettes. DeskMate is a non-system diskette.

1. Format a blank diskette as discussed in “Making Backups of System Diskettes—One-Drive System—1-7.”
2. Insert your MS-DOS/BASIC diskette in Drive A, close the drive door, press **RESET** and answer the startup prompts.
3. At the **A>** prompt, type **Diskcopy** **(ENTER)**. You are prompted to insert the formatted *target diskette* into Drive A.
4. Insert the newly formatted diskette and press any key. You are prompted to switch *source* (the non-system diskette that you wish to copy) and target diskettes several times. When finished the following prompt appears:

```
Copy Complete
Copy another (Y/N)?
```

5. Press **(N)** to end the session or **(Y)** to make more backups.

Two-Drive System

With 2 disk drives, the process is much easier.

1. Format a blank diskette. See “Making Backups of System Diskettes—Two-Drive System—1-5.”

2. At the system prompt (**A>**), type: **Diskcopy A: B: (ENTER)**. The following prompt is displayed:

```
Insert source diskette into Drive A.  
Insert formatted target diskette  
into Drive B:  
Press any key when ready
```

3. Insert the *source diskette* (the non-system diskette you wish to duplicate) into Drive A and the newly formatted *target diskette* into Drive B.
4. Press any key to begin. When the backup is complete the next prompt appears:

```
Copy Complete  
Copy another (Y/N)?
```

5. Press **(Y)** to make more copies or **(N)** to end the session and return to the system prompt.

MS-DOS Installation

Some application program diskettes do not contain MS-DOS, and therefore, are not bootable. You can boot your system with an MS-DOS diskette and then insert the application diskette to execute the program. However, for extra convenience, you can make the application diskette bootable through a special MS-DOS utility, COPYDOS.

Note if you have run the program and have created any data files on your working backup of the application, you cannot make that diskette bootable. You must utilize your original master in the following procedure which first copies the application and then moves MS-DOS files onto the copy.

1. Insert your MS-DOS diskette in Drive A. If you have a two-drive system, insert the master copy of the application in Drive B.
2. At the **A>** prompt, type **COPYDOS (ENTER)**. You are prompted to switch diskettes as the master is first copied and then MS-DOS files are moved onto the new copy of the application program.

Once the process is completed, you can boot your system with the new diskette.

Remember, if you attempt MS-DOS installation on a diskette that has been run and contains data files, you see the following error message:

No room for system on destination disk

Copy-Protected Diskettes

If you wish to make a copy-protected application diskette bootable, follow this procedure.

1. Remove the write-protect tab from the application diskette.
2. Insert your MS-DOS diskette in Drive A. If you have a two-drive system, insert your application diskette in Drive B.
3. At the **A>** prompt, type **COPYDOS P** (**ENTER**). You are prompted to switch diskettes as the MS-DOS files are copied onto the application diskette.

Once this process is completed, you can boot your system with the application diskette and begin using the program.

Remember, if you attempt MS-DOS installation on a diskette that has been run and contains data files, you see the following error message:

No room for system on destination disk

MS-DOS Installation for DeskMate

To allow for more data space, your DeskMate diskette is not a bootable diskette. You can boot (start up) your system with your MS-DOS diskette and then insert the DeskMate diskette to execute the program. For extra convenience, you can make a bootable DeskMate diskette by following these instructions.

Notes: This procedure reduces usable disk space from 52224 bytes to 12288 bytes.

Do not use this procedure if your printer requires LPINST. (See "Printer Configuration Instructions.") In this case, you must boot your system using the MS-DOS diskette.

One-Drive System

1. With the computer turned on, insert an MS-DOS system diskette in the drive, and press the RESET button. The system prompt, **A>**, is displayed once you answer the date and time prompts.
2. Type **format /s** (**ENTER**). The following message appears:

```
Insert new diskette for drive A:  
and strike any key when ready
```

3. Remove the system diskette, and insert a blank diskette into the drive.
4. Press any key to begin. A series of dashes appears on the screen. These dashes change to dots as the diskette is formatted. When the diskette is formatted, you are asked:

```
Format another Y/N?
```

5. Press (**Y**) to continue formatting as many diskettes as you wish. When the last diskette is formatted, press (**N**) at the prompt. The system prompt reappears.
6. Insert the original DeskMate master diskette that came with your computer. (Do not use a copy that already contains data you created.)
7. Type **copy *.exe b:** (**ENTER**).

The following prompt appears:

```
Insert new diskette for drive B:  
and strike any key when ready.
```

8. Insert the newly formatted diskette, and press any key. You are asked to switch diskettes several times. (Use the DeskMate diskette when you are prompted to insert the diskette for Drive A, and use the newly formatted diskette when you are prompted for the diskette for Drive B.)
9. With the original DeskMate diskette in Drive A, type **copy *.hlp b:** (**ENTER**).

As before, you are asked to insert the formatted diskette and strike any key. Do so, and when asked to switch diskettes, follow the instructions on the screen. The system prompt reappears when the transfer is complete.

10. Again, with the DeskMate diskette in Drive A, type: **copy *.tws b: (ENTER)**. Insert the formatted diskette, and press any key. Switch diskettes as instructed by the screen messages.

When you are finished, the system prompt reappears. Now, you have a bootable DeskMate diskette.

Two-Drive System

1. With the computer turned on, insert an MS-DOS system diskette in Drive A (the lower drive), and press the RESET button. The system prompt, **A>**, is displayed once you answer the date and time prompts.

2. Type **format b: /s (ENTER)**. The following message appears.

**Insert new diskette for drive B:
and strike any key when ready**

3. Insert a blank diskette in Drive B (the upper drive), and press any key to begin. **Format another Y/N?** appears when the diskette is formatted. Press **(Y)** to continue formatting diskettes. Press **(N)** when the last diskette is formatted. The system prompt reappears.
4. Insert your original DeskMate master diskette in Drive A (do not use a copy that already contains data you created), and type **copy *.exe b: (ENTER)**.
5. When the system prompt reappears, type **copy *.hlp b: (ENTER)**. When the transfer of .hlp files is complete, the system prompt reappears.
6. Type **copy *.tws b: (ENTER)**.

When you are finished, the system prompt reappears. Now, you have a bootable DeskMate diskette.

Using PC Software with the Tandy 1000

Mode Mono Command

If you use a monochrome monitor with your Tandy 1000, some color oriented application programs can appear dim and hard to read. Use the Mode Mono command to set the computer for monochrome display.

1. Boot the system using your MS-DOS diskette.
2. At the **A>** prompt, type: **MODE MONO ON** (ENTER).

This procedure translates the program color to black, white, and intense white display.

3. To switch back, type: **MODE MONO OFF** (ENTER).

Key Convert Utility

Some PC-compatible software expects certain keyboard characters to generate codes other than Tandy Scan codes. To make your Tandy 1000 compatible with these programs, create a special MS-DOS diskette to use for booting these programs.

1. Make a backup of your MS-DOS diskette. (See "Making Backups of System Diskettes.")
2. Be sure that the CONFIG.SYS file does not already exist by typing:

TYPE CONFIG.SYS (ENTER)

- 3a. If the file exists, the screen displays its contents. Enter the additional lines needed by typing:

EDLIN CONFIG.SYS (ENTER)

1 (ENTER)

DEVICE = KEYCNVRT.SYS (ENTER)

F6

E (ENTER)

- 3b. If the file does not exist, install it by typing:

COPY CON CONFIG. SYS (ENTER)

DEVICE = KEYCNVRT.SYS (ENTER)

F6 (ENTER)

Now, you can use this MS-DOS diskette to boot the system whenever you require key conversion.

Graphics Command

You can use the Graphics command for printing graphics in black and white on a Tandy dot matrix printer and on a non-Tandy, IBM-compatible printer. You can also use this command to print color graphics on a Tandy CGP-220 printer. Text screens can also be reproduced.

- At the **A>** prompt, type **GRAPHICS** (ENTER) to print black (or color) on a white background.
- Type **GRAPHICS /R** (ENTER) to print white on a black background. /R is not valid with the CGP-220 printer.
- Type **GRAPHICS /B** (ENTER) to print color on a black background. /B is only valid with the CGP-220 printer.

The following prompt appears:

```
Enter type of printer
[A] For Tandy CGP-220 printer
[B] For Tandy DMP standard resolution printer
[C] For Tandy DMP high resolution printer
[D] For other type printer
```

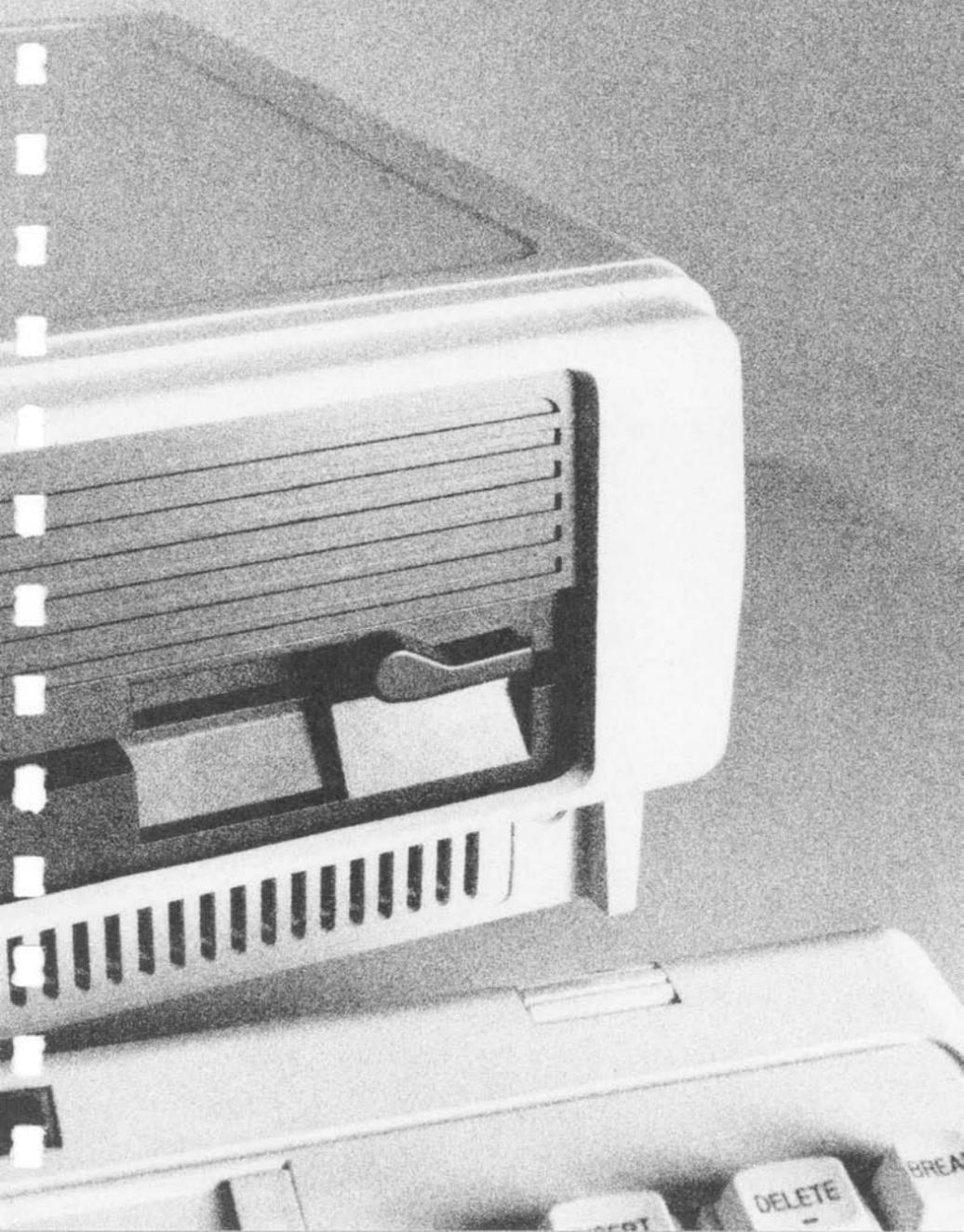
Type **A** for the Tandy CGP-220 printer. Select **B** for all Tandy DMP printers other than the DMP 2100 or the DMP 2100P. Select **C** for the Tandy DMP 2100 or the DMP 2100P. Select **D** for non-Tandy, IBM-compatible printers or Tandy DMP printers that are configured in the IBM mode. Then, press (ENTER).

Scroll Lock

Some PC-compatible application programs make use of a Scroll Lock Key. On the Tandy 1000, use (ALT)(BREAK) to generate the same function.

Note: For more information concerning your MS-DOS operating system, see the *Tandy 1000 MS-DOS Reference Manual*.

Beginning the Sample Session



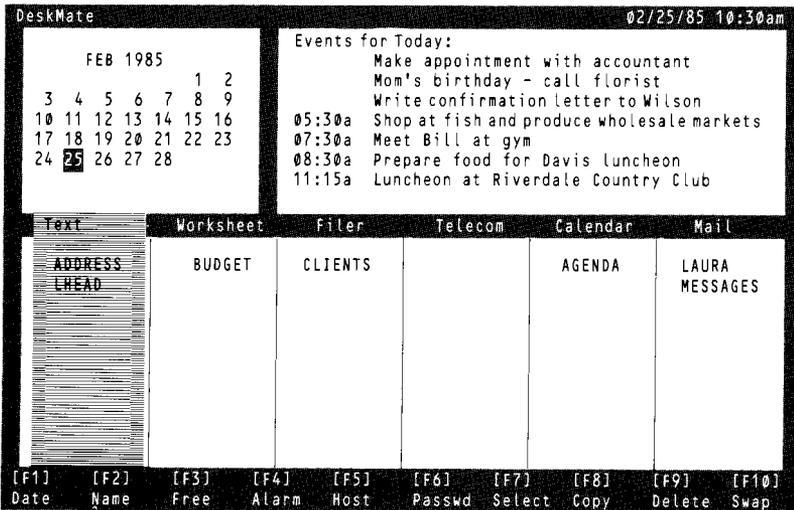
BEGINNING THE SAMPLE SESSION

During most of the sample session, you will be working with sample data involving Mr. Edwin Raymond's catering firm, Bon Appetit. You will be using DeskMate on Edwin's behalf. The sample session is divided into mini-sessions, each covering a different application or subfunction.

Before you try out some of DeskMate's features, make backups (duplicates) of the DeskMate Program Diskette. **Never** run DeskMate with the original Program Diskette—use it **only** for making working copies. Use the backups when you want to run DeskMate. (See "Making Backups of Non-System Diskettes.")

The Main Menu Screen

Insert a backup of the MS-DOS/BASIC Diskette into Drive A (the lower drive). Press the reset button. Enter the date as 02/25/85 and time as 10:30. At the system prompt, **A>**, insert a backup of the DeskMate Diskette and type **DESK** (**ENTER**). The DeskMate Main Menu is displayed.



- The top line shows the program name and the current date and time. (The date shown is the system date you enter when powering up the computer.)
- The current month's calendar is at the left with today's date highlighted.
- Events scheduled for today's date are displayed to the right of the calendar to remind you of special occasions. You enter events through the applications, Calendar and Alarm. These events can be special meetings and engagements or all-day events not associated with a particular time (such as a birthday).
- The bottom half of the screen lists the DeskMate applications.
- Previously created DeskMate files are listed under the appropriate application. These files contain sample data that you will be using during the sample session.

In the first column on the left are files created with the application, Text, followed by spreadsheet files created with the Worksheet application. Files created with Filer are displayed in the next column. Automatic log on files that give you instant access to telecommunication services are listed under Telecom. Calendar files are displayed in the next column, followed by Mail files that consist of messages you both send and receive.

- The bottom 2 lines of the screen are label lines listing the available functions of the application you are currently using. To select a function, press the corresponding function key. For example, if you wanted to change the date displayed in the upper right corner and highlighted in the calendar, you would press **(F1)** for Date. (The Main Menu functions currently displayed are discussed in the section, "Main Menu.")

To select an application, position the selection marker over the desired application by using **(←)** and **(→)**. When the application you want to use is highlighted, press **(ENTER)**. For example, when you first enter DeskMate, Text is highlighted, and you would simply press **(ENTER)** to select that application.

To select an existing DeskMate file, use the arrow keys to move the selection marker to the desired file, and press **(ENTER)** when the desired file is highlighted. The corresponding application is also highlighted and selected at the same time. You can also select the appropriate application, then enter the filename to access the desired file.

The sample session starts with the application, Text. When you are finished with a particular part of the sample session and want to exit DeskMate, press (F12) at the Main Menu. To have an extra copy of the work you have done during the sample session, make a backup of the DeskMate Diskette. It is a good idea to get into the habit of backing up your working copy at the end of each day that you enter or change data. After you have made a backup, remove all diskettes and turn off the computer system.

Control Keys

The control keys used in DeskMate are (ALT), (CTRL), and (SHIFT). These keys are used in combination with other keys to produce a *key sequence*. Control keys work in much the same way as the SHIFT keys of a typewriter. To use a control key hold the control key down while pressing the appropriate combination key.

Arrow Keys

You will be using the arrow keys within applications and subfunctions to move the selection marker or cursor to a particular piece of information. (The selection marker indicates that a whole unit of information is marked, such as file or an application. A cursor marks a single character.) To move the selection marker or cursor farther and faster, use the arrow keys with (SHIFT) or (CTRL). See your reference manual for details on using the arrow keys.

Function Keys

Functions are specific to each application. Function keys ((F1), (F2), and so forth) and names are displayed on the last two lines of the application screen. To select a function, press the appropriate function key. (F11) and (F12) function in specific ways throughout DeskMate. Their uses are as follows:

(F11)—Toggles an alternate label listing 7 subfunctions (as distinguished from the main DeskMate applications) you can choose at any time. Press (F11) now to see this menu. At the bottom of the screen, you see:

[ALT:F1] Help	[ALT:F2] Calc	[ALT:F3] Show Alarm	[ALT:F4] Alarm On/Off	[ALT:F5] Phone	[ALT:F6] Printer	[ALT:F7] Date
------------------	------------------	------------------------	--------------------------	-------------------	---------------------	------------------

It can be helpful, but is not necessary to display the subfunction menu before selecting a subfunction. To access a subfunction from anywhere in DeskMate, hold down (ALT) while you press the appropriate function key. These subfunctions are described in more detail throughout the tutorial.

Note: Each application has a help screen, which, like the *Quick Reference Guide*, briefly explains all the available key functions. Whenever you want to display the help screen for the application you are currently using, press (ALT) (F1).

Press (F11) now to return to the Main Menu level of operation. The subfunction menu is replaced with the Main Menu label lines.

(F12)—Returns you to the previous level of operation, to the Main Menu, or back to the MS-DOS system prompt. Use (F12) if you have chosen an application or subfunction accidentally or if you are finished with whatever you are doing.

(SHIFT) (F12)—Also returns you to the previous level of operation, to the Main Menu, or back to the MS-DOS system prompt. You can also use (SHIFT) (F12) in the Text and Worksheet applications if you do not want to save a new file or changes made to an old file. The data just entered or any changes made to an existing file are not saved, and you return to the Main Menu.

Message for Color Monitor Users

If you use the color monitor, you can change the color arrangement on the screen. Take a few minutes to experiment and see which arrangement you prefer.

The function keys (F1), (F2), (F3), and (F4) used with the (CTRL) key control color as follows:

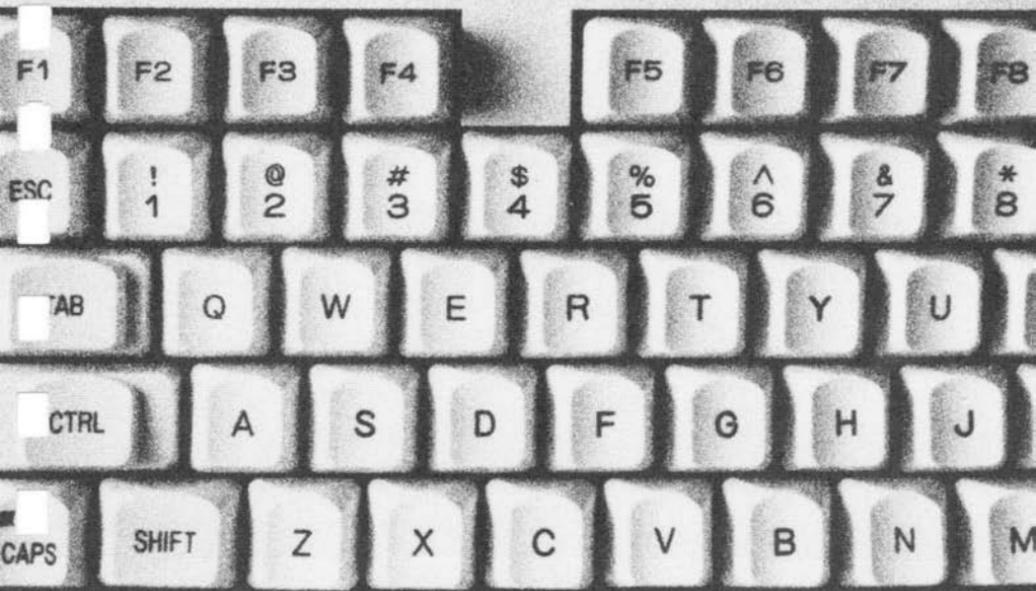
- (CTRL) (F1)—Background of the screen
- (CTRL) (F2)—Foreground of the screen
- (CTRL) (F3)—Highlighted background
- (CTRL) (F4)—Highlighted foreground

1. For example, hold down (CTRL), and press (F1). The background changes to the first of 16 color choices.
2. Press (CTRL) (F1) several more times. Each time you press the function key a different background color is displayed.

Screen Display

If you leave a particular screen displayed without doing anything for more than 10 minutes, the contents of the screen disappear and you see the title, DeskMate, scroll from left to right. This action prevents the previous image from being burned on the screen permanently. Press any key and the previous screen reappears.

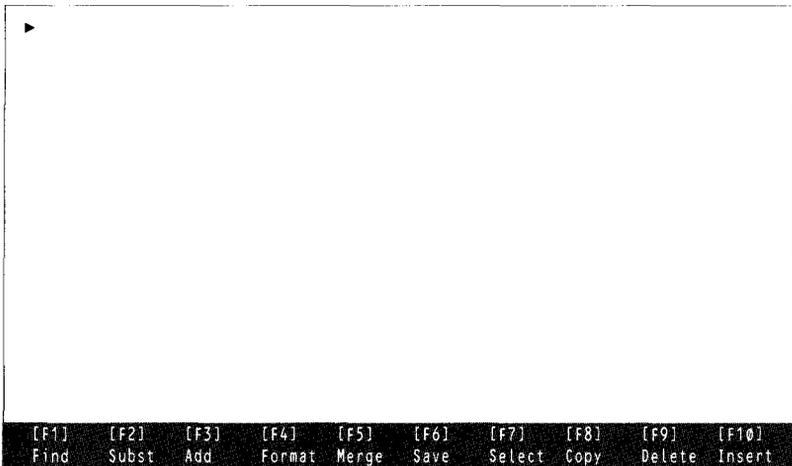
Text



Chapter 4

TEXT

1. Press **ENTER** to select Text. The `Enter filename:` prompt appears.
2. Type **Letter** **ENTER** for the name of the text file you are creating. A blank typing page appears with label lines at the bottom of the screen, showing the functions available in Text.



3. Type the following letter, pressing **ENTER** where indicated. Do not worry about typing mistakes. Later you'll learn how to correct errors by inserting, deleting, and overstriking text.

Dear Mrs. Williams: (ENTER)

(ENTER)

I am writing to confirm your agenda for the upcoming month. I have you scheduled for the following days: (ENTER)

(ENTER)

3/3/85 Luncheon for 8 at noon (ENTER)

3/12/85 Afternoon tea for 6 at 3:00 (ENTER)

3/25/85 Dinner for 10 at 8:00 (ENTER)

3/31/85 Wedding reception for 60 at 7:30 (ENTER)

(ENTER)

If any of the above information is incorrect, please inform me as quickly as possible, as March appears to be a very busy month. Also, we need to get together soon and arrange the menus. (ENTER)

(ENTER)

Sincerely, (ENTER)

(ENTER)

Edwin Raymond (ENTER)

Note: ► indicates the end of a document and the ■ sign indicates the end of a line.

Raymond needs to add an event to the list for March 1st.

1. Move the cursor over the first 3 of 3/3/85 by holding down the (↑) key until you are at the line containing the March 3rd event.
2. You are currently in Add mode (the default typing mode) as shown in the label line at the bottom of the screen. Type 3/1/85, press the space bar 3 times, and type **Bridal shower for 15 at 1:00** (ENTER).

Note that the original text automatically moved to the right as you added (inserted) the new text and then moved down to the next line when you pressed (ENTER) after typing.

The information for the event scheduled on March 25th needs to be changed to March 26th for 12 people.

1. Move the cursor over the 5 of 25.
2. To change the typing mode to Replace, press (F3). (Note that Replace now appears in the label line.)
3. Type 6 over the 5, move the cursor to the 0 of 10, and then type 2 over the 0. Replace (overstrike) mode lets you type over text.

One more correction should be made. The word, **and**, in the last sentence should be changed to *to*.

1. Move the cursor to the **a** in **and** and type **to**.
2. Press **(DELETE)** or **(F9)** to erase the **d** and shift the rest of the sentence to the left one character.
3. Press **(F3)** to switch from Replace back to Add mode.

Note: If you made any mistakes while typing the letter, correct those errors now by using the Add/Replace typing modes and the Delete function, then continue with the rest of the Text sample session.

Copying Text from Another File

Address information from another Text file should be inserted above the salutation.

1. Press **(F12)** to save the letter and return to the Main Menu.
2. Press **(↓)** to move the marker over the ADDRESS file, and press **(ENTER)**. The name/address information of Mr. Raymond's customers appears on the screen.
3. To look up Mrs. Williams' address, press **(F1)** for Find.
4. Type **Wil** (using just part of the name, Williams) **(ENTER)** for the search string. The cursor moves to the **W** of Williams.

Anytime you want to do something with a block of information (Copy, Insert, Delete), you must first define the text block using the function, Select.

1. Move the cursor to the **M** of **Mrs.**, and press **(F7)** to select the beginning of the address block.
2. Press **(↓)** 3 times to select the 3 lines of Mrs. Williams' address block.
3. Press **(F8)** to put a copy of the address block in the copy buffer.
4. To create a new file in which to put a copy of the address block, press **(F8)** again. At the bottom of the screen, you see:

From: **To:**

5. Press **(ENTER)** to skip the **From** prompt, and for the new filename, type **Williams (ENTER)**.
6. Since you are finished using the ADDRESS file, press **(F12)** to return to the Main Menu.
7. Use the arrow keys to position the marker over **LETTER**, and press **(ENTER)**.
8. When the letter reappears, press **(F8)** to use the Copy function again.
9. Type **Williams (ENTER)** to load the copy buffer from that file.
10. To insert the address block above the salutation, make sure the cursor is at the beginning of the letter, and press **(INSERT)** or **(F10)** to Insert the contents of the copy buffer at the current cursor position.

You need to add a blank line between the customer's address and the salutation.

1. Check the label line at the bottom of the screen to make sure you're in Add mode. If Replace is displayed instead of Add, press **(F3)** to change typing modes.
2. Move the cursor to the **D** of **Dear**, and press **(ENTER)** to create a blank line.

Edwin Raymond's return address should be placed above Mrs. Williams' address. A Text file called LHEAD contains the standard heading Edwin uses at the top of all his correspondence.

1. Press **(CTRL) (↑)** or **(HOME)** to move the cursor to the beginning of the text.
2. To insert the Text file, LHEAD, at the top of the letter, press **(F5)** for Merge; then type **LHEAD (ENTER)** for the filename.
3. To add a blank line between the addresses, move the cursor to the **M** in **Mrs.** and press **(ENTER)**.

The address information appears at the beginning of the document, and now the letter looks like this:

```
Edwin Raymond
4000 Seville Avenue
Fort Worth, Texas 76126
Date

Mrs. Eliot Williams
1908 Florida Avenue
Denton, Texas 70912

Dear Mrs. Williams:

I am writing to confirm your agenda for the upcoming month. I have
you scheduled for the following days:

3/1/85   Bridal shower for 15 at 1:00
3/3/85   Luncheon for 8 at noon
3/12/85  Afternoon tea for 6 at 3:00
3/26/85  Dinner for 12 at 8:00
3/31/85  Wedding reception for 60 at 7:30

If any of the above information is incorrect, please inform me as
quickly as possible, as March appears to be a very busy month. Also,
we need to get together soon to arrange the menus.

Sincerely,

Edwin Raymond
```

4. Move the cursor to the **D** of **Date** line.
5. Press **(F3)** to switch to Replace mode; then type **February 25, 1985 (ENTER)**.

Note: With the addition of 2 address blocks, the letter now contains more than 22 lines, the maximum number of text lines that can be displayed on a screen. Press **(CTRL) (I)** or **(END)** to move the cursor to the end of the letter to see the lines that would not fit on the screen.

Printing Text

Before printing text, it is a good idea to make the line width displayed on the screen coincide with the line width that will be printed on a page. By using the function, Format, you can get a rough idea of what the text will look like when it is printed.

1. To change the displayed line width, press **(F4)** for Format.
2. The default (built-in) width value is **70**. Since the letter will be printed with a line width of **50**, type **50 (ENTER)** to change the display.

The letter now looks like this:

```
Edwin Raymond
4000 Seville Avenue
Fort Worth, Texas 76126
February 25, 1985

Mrs. Eliot Williams
1908 Florida Avenue
Denton, Texas 70912

Dear Mrs. Williams:

I am writing to confirm your agenda for the
upcoming month. I have you scheduled for the
following days:

3/1/85   Bridal shower for 15 at 1:00
3/3/85   Luncheon for 8 at noon
3/12/85  Afternoon tea for 6 at 3:00
3/26/85  Dinner for 12 at 8:00
3/31/85  Wedding reception for 60 at 7:30

If any of the above information is incorrect,
please inform me as quickly as possible, as March
appears to be a very busy month. Also, we need to
get together soon to arrange the menus.

Sincerely,

Edwin Raymond
```

Note: Use the arrow keys to see the entire letter.

3. Make sure your printer is properly connected and on-line. Use standard 8 1/2 by 11 inch paper (80-column computer paper), and align the paper in the printer.

4. Press **(F11)** to display the subfunctions menu. At the bottom of the screen, you see:

[ALT:F1]	[ALT:F2]	[ALT:F3]	[ALT:F4]	[ALT:F5]	[ALT:F6]	[ALT:F7]
Help	Calc	Show Alarm	Alarm On/Off	Phone	Printer	Date

5. To display the Printer settings, hold down **(ALT)**, and press **(F6)**. The screen shows the default values for the 6 settings.

PRINTER SETTINGS

Left Margin:	5
Printed Line Width:	70
Total Lines per Page:	66
Printed Lines per Page:	60
Double Space (Y/N):	N
Pause between Pages? (Y/N):	Y

6. The default setting for the **Left Margin** is shown as 5. Type **15 (ENTER)** to make the left margin approximately 1½ inches from the edge of the paper.
7. The next setting, **Printed Line Width**, is the number of characters you want a printed line to contain. To change the default line width of 70 to 50, type **50 (ENTER)**.
8. The **Total Lines per Page** refers to your paper size, the number of lines on the entire page. The default value for **Total Lines per Page**, 66, is used for both regular-sized paper (8½ by 11 inches) and wide, 132-column computer paper (14 by 11 inches). Press **(ENTER)** to use the displayed default value of 66.
9. **Printed Lines per Page** refers to the number of lines you want printed on the page. This value equals the number entered for **Total Lines per Page** minus the number of blank lines you want at the top and bottom of a page. After you manually adjust the printer, aligning the paper to start printing from the line at the printer head position, double that line value, and then subtract that from the **Total Lines per Page** value.

To have the bottom margin also contain 6 blank lines (and the top margin of any subsequent pages), you subtract 12 from 66 and the result, 54, is the value for **Printed Lines per Page**. Type 54 (ENTER) to change the **Printed Lines per Page** default.

10. At the **Double Space** prompt, press (ENTER) to keep lines single spaced.
11. If you are printing on single sheets, press (ENTER) to instruct the computer to stop after printing each page. If you are printing on continuous form paper, type N (ENTER).

The setting for **Pause between Pages** does not really matter in this example, since the letter is less than one printed page. For this example, simply press (F12) to skip the last prompt and to redisplay the Text function label lines; then press (PRINT) to start printing.

Substituting Text

1. After the printer has stopped, press (F12) to save the letter file and return to the Main Menu.
2. At the Main Menu, press (↓) to move the cursor over ADDRESS, and press (ENTER). The name/address information of Mr. Raymond's customers reappears on the screen.
3. Press (F11) to display the subfunctions menu; then press (ALT) (F1) for the Text Help screen. The screen shows:

```
Text
To select a function, press appropriate function key.
[F1] FIND specified string. Enter search string for first match.
    Press [F1], [ENTER] to search for next match.
[F2] SUBSTITUTE search string with replacement string. Enter
    search/replacement strings. Press [Y] or [N] at all
    matches or [BREAK] to cancel search/replace process.
[F3] ADD/REPLACE switch. Switch between insert [ADD] and
    overstrike [REPLACE] modes.
[F4] FORMAT screen display. Enter desired line width.
[F5] MERGE another Text file at cursor position. Enter filename.
[F6] SAVE copy of current document to disk. Enter new filename
    or press [ENTER] to use original filename.
Press [ENTER] for next page of Help or [F12] to exit Help.
```

4. To see the next help screen, press **(ENTER)**.

Text	
To select a function, press appropriate function key.	
[F7]	SELECT beginning of block, move cursor to end of desired block, then copy or delete.
[F8]	COPY selected block to copy buffer or add TO specified Text file; or load COPY buffer FROM specified Text file.
[F9]	DELETE current character or selected block.
[F10]	INSERT contents of copy buffer at cursor position.
[DELETE]	Delete current character or selected block.
[PRINT]	Print document. First check printer settings on subfunctions menu.
Press [F12] to exit Help.	

5. Press **(F12)** to return to the Text screen. Press **(F11)** to return the Text label lines.

The only Text function you have not used yet is Substitute. The Substitute function lets you find a specific string of characters throughout a text file and replace the string with different text. Uppercase and lowercase distinctions are ignored in search strings. For example, *STRING* and *string* are recognized as equal.

- Suppose you want to change almost every occurrence of Fort Worth to Dallas. Press **(F2)** for Substitute; then type **Fort Worth (ENTER)** for the **Search string**.
- For the **Replacement string**, type **Dallas (ENTER)**.
- The cursor moves to the first occurrence of Fort Worth in Cindy Beauchamp's address, and you are asked **Replace? (Y/N)**.
- Press **(Y)**. The replacement string, Dallas, is substituted for the search string, Fort Worth, and then the cursor moves to the next occurrence of the search string in Ellen McKinney's address.
- Press **(N)** to keep this occurrence of Fort Worth. The cursor moves to the last address and asks you **Replace? (Y/N)**.
- Press **(Y)**. The screen displays the beginning of the document.
- To change the addresses back to the way they were originally, press **(CTRL) (1)** or **(HOME)**; then press **(F2)** for Substitute again.
- This time, type **Dallas (ENTER)** for the search string and **Fort Worth (ENTER)** for the replacement string.

- Press **Y** at the first occurrence, **N** at the second occurrence, and **Y** at the last occurrence. Now the Address file is the same as when you opened it.

Using Calculator Within Text

You can select the subfunction, Calculator, while using any application. Before exiting Text and returning to the Main Menu, experiment with Calculator. It is not necessary to view the subfunction menu before selecting a subfunction. To access Calculator directly, press **ALT F2**. The Text label lines at the bottom of the screen are replaced by the Calculator labels and a small window to display figures.

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	0.0000000000
Add	Sub	Mul	Div	Percent	CA	CE	+/-	+

Calculator works just like a hand-held calculator, except that both the accumulator (the result of the last mathematical operation) **and** the operand (the number upon which the operation is performed) are always visible. (You usually can enter and see only one number at a time on a hand-held calculator.)

- To add 5 and 1, type **5 ENTER** and **1 ENTER**. The answer, **6.0000000000**, (the accumulator) is displayed on the top line.
- To subtract 4 from 6, press **F2** for Sub; then type **4 ENTER**. The top line changes to **2.0000000000**.
- To multiply 2 by 10.3, type **F3 10.3 ENTER**. (To multiply, you can use the **F3** function or type *****.) The accumulator is now **20.6**.
- To divide 20.6 by .4, press **F4**, and type **.4 ENTER**. The answer, 51.5, is shown on the top line. Note that it doesn't matter in what order you do things: You can type the operand or select the mathematical operation first. In either case, once you press **ENTER**, the operation is performed and the answer is displayed.
- Now suppose you want to know what 25 percent of 51.5 is. Type **%** (or press **F5**), and type **25 ENTER**. The accumulator changes to 12.875. The Percent function takes the operand you enter and gives that percentage of the accumulator, displaying the result on the top line.

6. The CA function erases both the top and bottom lines and sets the operation to Add. Press (F6) for Clear All to start over.
7. If you make a mistake in typing an operand, press (F7) before you press (ENTER) to perform the operation. When you use the CE (Clear Entry) function, only the last number typed (the operand) is erased. The original arithmetic operation is still performed.

For example, suppose you want to take 30% of 51.5, and instead, you accidentally type 25. Type 51.5 (ENTER). Press (F5) for Percent; then type 25. Press (F7) to erase the 25; then type 30 (ENTER). The new result is 15.45.

8. (F8) changes the sign of the operand from positive to negative and vice versa. For example, to divide 15.45 by a negative 4, press (F4) for Divide, then (F8) to change the sign of the operand to negative, and type 4 (ENTER). The answer, shown on the top line, is -3.8625.
9. To exit Calculator and return to Text, press (F12). The bottom lines change back to the Text labels.

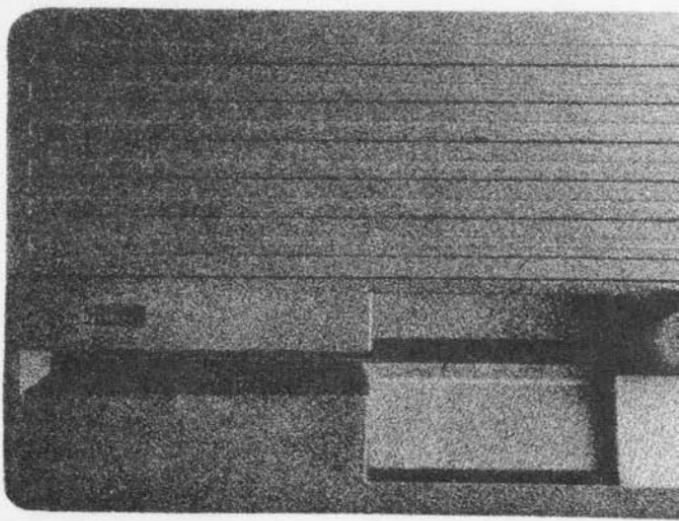
Exiting Text

To exit Text, press (F12) to return to the Main Menu. (F12) saves a newly created document you just typed or any editing changes made to an old document. When you press (F12), the Text file (and any revisions made to it) is saved on disk, you exit Text, and return to the Main Menu.

If you do not want to save a newly created document or the editing changes made to an old document, press (SHIFT) (F12). When you press (SHIFT) (F12), you are asked if you want to **C a n c e l E d i t ? (Y/N)**. Press (Y) to return to the Main Menu not saving a new document or any editing changes made to an old document. If you were editing an old document, the text file would be *unedited*. It would be exactly the same as it was when you first opened it for revisions. Press (N) if you want to continue editing or **do** want to save the changes you've made.

If you have edited a file and want to keep the file as it was originally entered plus have a new file including all changes, use the Save function by pressing (F6). Then, enter a name for the new file with the editing changes.

Filer



FILER

1. To select the file, CLIENTS, from the Main Menu, place the selection marker over CLIENTS (in the Filer column), and press **(ENTER)**. The screen soon shows the first record in the Clients file.

```
FILER [CLIENTS]      First Record      02/25/85  10:30am
Last Name . . . . .*: Beauchamp
First Name . . . . .*: Cindy
Address . . . . .*: 2209 Riverdale Road
Address . . . . .*:
City . . . . .*: Fort Worth
State . . . . .*: Tx
Zip Code . . . . .*: 76107

Phone . . . . .*: 817-883-1267

Acct Bal ($) . . . . .#      0

Remarks . . . . .*: Prefers French cuisine, very dry wines. Allergic
                    to almonds. Member of Riverdale Country Club.

[F1]  [F2]  [F3]  [F4]  [F5]  [F6]  [F7]  [F8]  [F9]  [F10]
Find  Call  Display Print  Form  Merge  Select  Copy  Delete  Add
```

Edwin Raymond previously set up this form to use for clients. The file, CLIENTS, is made up of all client records. A form is divided into 2 parts: labels are in the left column, and the right half of the screen is for entering the actual data for the client. For example, Last Name is a label, and Beauchamp is the data field.

The pound sign (#), next to the Account Bal (\$) label, indicates that this is a numeric field. However, you can also use the Number function, which displays a pound sign in the label area, when creating a form to make any data field, text or numeric, right-justified for print and display purposes. An asterisk (*) in the label area indicates that the information in the label and data areas is printed or displayed if you choose those functions.

Tutorial

2. Press **CTRL** **←** to see the next record. The screen shows a form filled in for Frederick Davis.

```
FILER [CLIENTS]                                02/25/85  10:30am
Last Name . . . . .*: Davis
First Name . . . . .*: Frederick
Address . . . . .*: 6601 Oak Boulevard
Address . . . . .*:
City . . . . .*: Arlington
State . . . . .*: Tx
Zip Code . . . . .*: 77109

Phone . . . . .*: 817-256-9011

Acct Bal ($). . . . .# 217.33

Remarks . . . . .*: Outstanding bill for 1/15/85 dinner. Sent 1/31/85.
Call if not paid by 2/28/85.

[F1]  [F2]  [F3]  [F4]  [F5]  [F6]  [F7]  [F8]  [F9]  [F10]
Find  Call  Display Print  Form  Merge  Select  Copy  Delete  Add
```

Records are arranged in alphabetical order or ascending numerical order, depending on the type of data that is entered for the first label of a form. For example, if clients are given account numbers and Account # was the first label of the form, the records in the Clients file would be arranged according to ascending account number.

Note: You can arrange records using any label you wish when you create a form using the Order function. This topic is explained later in this section.

Finding Records

Edwin Raymond wants to review all records of clients who live in Fort Worth.

1. Press **F1** for Find. A blank form is displayed. New label lines appear at the bottom of the screen with function keys you can use while in Find mode.
2. To skip the first 4 data fields, press **↓** (or **ENTER**) until the marker is on the data field for City, and type **Fort Worth** **ENTER**.

3. Press **(F12)** to return to the original Filer screen and display the first match found. Cindy Beauchamp's record reappears on the screen.
4. Press **(CTRL) (←)** to see the next match found. The screen shows the record of Laura Wordsworth.

Suppose Edwin wants to print a list of those customers who have an outstanding balance in their account (Account Balance > 0).

1. Press **(F1)** for Find and **(F5)** to Reset the search criteria.
2. Press **(↓)** until the marker is positioned on the Account Bal line.
3. Press **(F2)** to change the operator from *equal to* to *greater than or equal to*. Then, type **1 (ENTER)** for the amount.

Note: = is the default operator to find an exact match of the search criteria entered. To change the operator press **(F2)** to look for a match Greater than or equal to or **(F3)** for Less than or equal to.

4. Presently, all the labels and data fields are marked to be printed or displayed as indicated by an asterisk on each label line. It is necessary to *unmark* any labels that you wish to exclude from the display and printout.

Before exiting the Find screen, move the marker to the first address line, and press **(F7)**. The asterisk disappears so that now the first Address label and information will not be displayed or printed. Mark toggles back and forth from marking to unmarking a label and associated data for printing and displaying.

5. Move the marker to the second address line, and press **(F7)** to switch from Mark to unMark. Repeat this process for the labels, City, State, Zip Code, Phone, and Remarks.
6. When only the labels, Last Name, First Name, and Account Balance, have an asterisk next to them, press **(F12)** to return to the original Filer screen. The first record with an outstanding balance, that of Frederick Davis, is displayed.

7. The 2 functions, Display and Print, list a group of records (rather than just one record at a time) in horizontal format. To display a list of those customers who have an account balance equal to or greater than \$1.00, press (F3). The screen soon displays the list of records that match the Find criteria. The labels are displayed on the top line with the data of the matching records below the appropriate label column.

FILER - DISPLAY [CLIENTS]			Find Mode		02/25/85 10:30am				
Last Name	First Name	Acct Bal							

Davis	Frederick	217.33							
Helmer	John	650.51							
Williams	Eliot (Mrs.)	88.00							
End of List									
[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
	Call		Print			Select	Copy		

8. To print this information, first make sure that your printer is on-line.
9. Next, check the printer settings by pressing (F11); then (ALT) (F6).
10. To change the printer settings to the values for printing this list, type 0 (ENTER) for Left Margin, 79 (ENTER) for Printed Line Width, (ENTER) to keep 66 for Total Lines per Page; then type 60 (ENTER) for Printed Lines per Page.
11. Press (F12) to return to Filer; then press (F4) to print. The records are printed exactly the way they appear on the screen when you display them.
12. To exit the Display screen, press (F12). The lines with the original function keys reappear.

Edwin has landed a new client and needs to add a new record to the file.

1. Press **(F10)**. A blank screen appears so that you can fill in the information for the new client.
2. For **Last Name**, type **McKinney (ENTER)**. For **First Name**, type **Ellen (ENTER)**. Type **3398 Ridgeway (ENTER)** in the first address line; then type **Apartment 500 (ENTER)** in the second address line. For **City**, type **Fort Worth (ENTER)**; then for **State**, type **Tx (ENTER)**. Type **76103 (ENTER)** for the **Zip Code**. For **Phone**, type **8173338166 (ENTER)**. Type **0 (ENTER)** for the account balance. For the last item, **Remarks**, type **Prefers Szechwanese cuisine—very spicy.**
3. To exit Add mode, press **(F12)**.

Calling Edwin's clients is as easy as looking up their files.

1. Press **(F1)** for Find; then press **(F5)** to clear the current Find selections.
2. Press **(F12)** to return to the original Filer screen and the last record you viewed.
3. To call Cindy Beauchamp, press **(CTRL) (I)** to access the first record. Then, press **(I)** until the marker is on the **Phone** line. If you were to actually make the phone call now, you would press **(F2)** to have the number automatically dialed for you.

Creating a New Form

Edwin needs a special form created for the stores and companies he uses.

1. Press **(F12)** until the Main Menu is displayed.
2. Select the Filer application, and type **Supplier (ENTER)** as the name of the new file you are creating. A blank Form screen is displayed with the Form function key label lines:

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Order	Pack	Number						Delete	Add

3. For the first label, type **Company** (ENTER). The rest of the space allocated for the label is filled with spaces, a colon is inserted, and the cursor automatically moves to the first position in the data area.
4. Press (ENTER) to fill the rest of the line with dots. When you actually enter data for this label, you will be able to type 59 characters for a firm's name.
5. Press (ENTER) to return to the label area.
6. For the second label, type **Contact** (ENTER).
7. Press (ENTER) again to indicate the data area.
8. Press (ENTER) to return to the label area, and type **Address** (ENTER) for the next label. Then press (ENTER) twice.
9. To create an additional address line, repeat the above instruction, type **Address**; then press (ENTER) 3 times.
10. Type **City**, and press (ENTER) 3 times for the fifth label.
11. Next, type **State** (ENTER). To limit the number of characters to 2 for the standard 2-letter state abbreviation, press (F10) twice, and then press (ENTER). When you enter data for **State**, you will be able to enter only 2 letters in the data field.
12. Type **Zip Code** (ENTER) for the next label, press (F10) 5 times, and then press (ENTER) for the data field. Press (ENTER) to create a blank line below **Zip Code**.
13. Type **Phone** and press (ENTER). To specify the phone number format, press (F10) 12 times. Use the arrow keys to move back and type in dashes so you get a --- --- ---- format. Press (ENTER) twice to create a blank line below **Phone**.
14. For the next label, type **Amount Due** (ENTER). To limit the number of digits that can be entered to 7 plus a decimal point, press (F10) 8 times, and then press (ENTER).
15. Press (ENTER) to create a blank line; then for the last label, type **Remarks** (ENTER). To create the maximum amount of space that a data field can contain (255 characters), press (ENTER); then hold down (F10) to Add data space until the cursor stops.

Your form should look like this:

Company_____	:	-----
Contact_____	:	-----
Address_____	:	-----
Address_____	:	-----
City_____	:	-----
State_____	:	--
Zip Code_____	:	-----
Phone_____	:	-----
Amount Due_____	:	-----
Remarks_____	:	-----

16. One more label needs to be added. Press **(ENTER)** to move the marker to the label area.
17. To insert a label between **Phone** and **Amount Due**, move the marker to the beginning of the **Amount Due** line, and press **(F10)** to Add a label.
18. Type **Due Date** **(ENTER)** as the label. To specify a **./../.** format for the date, press **(F10)** 8 times. Use the arrow keys to go back and type 2 **/**'s; then press **(ENTER)**.
19. To specify a data field as numeric, use the Number function. With the marker on the **Amount Due** line, press **(F3)**. The dollar amounts are right-justified after you enter data for this label and the record is added to the file.

Arranging Records Using Order

Use the Order function to arrange the records according to 1 or more fields. For example, suppose Edwin wants the records to be sorted according to **Due Date** and **Company** name. You specify **Due Date** as the first label by which to sort, and then **Company** as the second label by which to sort.

The records are then arranged so that the first record displayed has the earliest **Due Date**. If 2 records have the same **Due Date**, the record with the **Company** that comes first alphabetically is displayed before the other.

Note: If you don't specify the order in which you want to sort records, the program automatically arranges the records in ascending order using the first label on the form. In this case, if no order is specified, the records are arranged alphabetically according to **Company**.

1. To specify **Due Date/Company** order, move the marker to the Due Date label, and press **(F1)**.
2. Type **1** for the Priority Number. Note that the priority number is displayed after the label.
3. Next, move the marker to the **Company** label, and press **(F1)**.
4. Type **2** for the next priority number.
5. You need to make 1 more modification. Suppose that you decide you really don't need that last line to enter data for **Remarks**. To delete the fifth data line, move the marker to the **Remarks** line, and press **(ENTER)** to move the marker to the data area.
6. Press **(↑)** to move the marker to the beginning of the last line, then hold down **(F9)** for Delete until the entire line of spaces has been erased. There should now be 4 full lines for entering data.

Adding New Records

1. Now that the form is complete, press **(F12)** to exit the Form screen. The blank form is displayed so that you can now start adding records.
2. Fill in the form with the following data, pressing **(ENTER)** after typing information for a data field.

```
Company-----*: ABC Exterminators
Contact-----*: Roy Johnson
Address-----*: 4000 Main Street
Address-----*: P.O. Box 112
City-----*: Fort Worth
State-----*: Tx
Zip Code-----*: 76101
Phone-----*: 817-990-1212
Due Date-----*: 03/05/85
Amount Due-----# 33.87
Remarks-----*:
```

3. At the data field for **Remarks**, press **(F10)** to store this record and add another.
4. After you save a record by using the Add function, a blank form reappears for adding a new record. Type the following data for the next 2 records, pressing **(ENTER)** after typing information for a data field.
5. Press **(ENTER)** to skip the second **Address** line, and press **(F10)** after you enter the **Amount Due**.

```
Company-----*: LaFrance Bakery
Contact-----*: Jacqueline Dominique
Address-----*: 634 Trinity Avenue
Address-----*:
City-----*: Fort Worth
State-----*: Tx
Zip Code-----*: 76018

Phone-----*: 817-732-5766

Due Date-----*: 03/01/85
Amount Due-----*# 45.14

Remarks-----*:
```

```
Company-----*: Petta Linen Service
Contact-----*: Giorgio Petta
Address-----*: 6501 Blackwood
Address-----*:
City-----*: Fort Worth
State-----*: Tx
Zip Code-----*: 73092

Phone-----*: 817-482-7371

Due Date-----*: 03/06/85
Amount Due-----*# 17.16

Remarks-----*:
```

6. Type the information shown below for the last record. When you get to the **Remarks** data field, type each line, and then press the space bar to move the cursor to the beginning of the next line.

7. Word-wrapping is not automatic. Fill the rest of the line with spaces whenever you want to start a new line.
8. When you're finished typing the **Remarks** information, press **(F12)** to save the last record entered and exit Add mode.

```
Company-----*: Young's Fish Market
Contact-----*: Ann Young
Address-----*: 554 2nd Avenue
Address-----*:
City-----*: Fort Worth
State-----*: Tx
Zip Code-----*: 77069

Phone-----*: 817-563-2199

Due Date-----*: 03/02/85
Amount Due-----*# 78.44

Remarks-----*: DAILY SPECIALS: Monday - Fresh lobster. Tuesday - Shrimp.
                  Wednesday - Red snapper. Thursday - Crab. Friday - Lake
                  trout. Saturday - Oysters and clams.
```

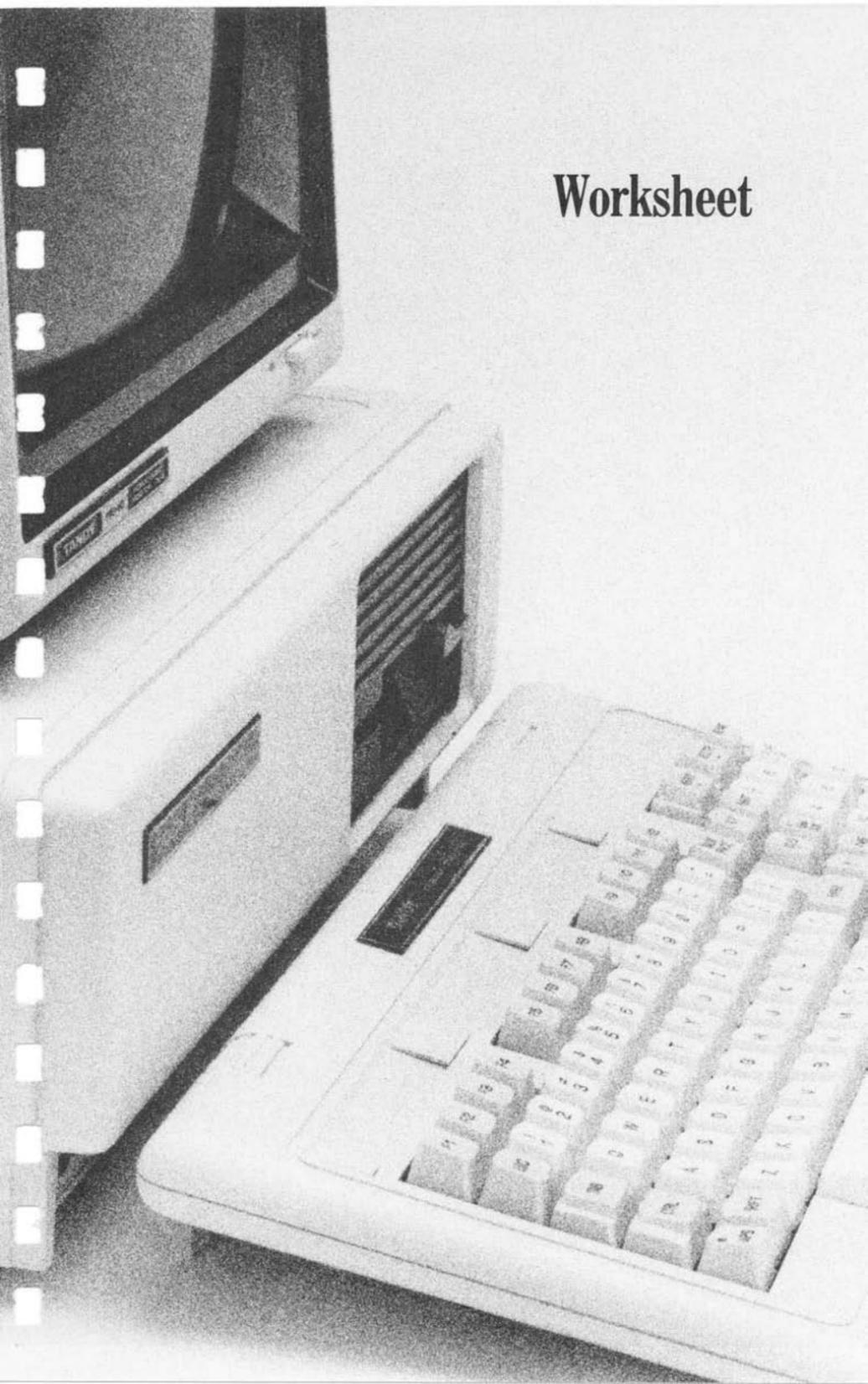
You can see that the records have been sorted according to the **Due Date/Company** order. The record with the earliest due date, March 1, is LaFrance Bakery, and that record appears on the screen, even though the first record entered was for ABC Exterminators.

1. Press **(CTRL)** **(←)** to see the record with the next due date. The record for Young's Fish Market is displayed; although this was the last record entered.
2. To see the last record in the file according to the Order criteria, press **(CTRL)** **(↓)**. The record for Petta Linen Service is displayed because this record has the last due date, March 6.
3. Before returning to the Main Menu, read the notes below on the other functions that you can use in Filer. After you are finished, press **(F12)** to return to the Main Menu.

Other Functions

- Use the Call function to dial the telephone number on which the marker is currently positioned. To use the Call function, you must have your computer properly connected to an automatic dialing modem.
- The function, Pack, on the Form screen is used to improve the efficiency level of a file. If you change the form or frequently add or delete records, the amount of wasted space in the file (and on diskette) increases which, in turn, decreases the efficiency of the file. At the top of the Form screen you see **E f f i c i e n c y = A**. If your efficiency level has declined from A to C or D, use Pack to “clean up” the file and compress the data as compactly as possible.
- Use Select (on the original Filer screen after records have been added) to define the data you want to put into a text file via the Copy buffer. Use Copy to specify which Text file you want to copy **T o**.
- To merge the records **F r o m** another Filer file with the current file, use the Merge function. The format of the other file must exactly match that of the current file. If both the label and data fields are set up in the same manner, the records from the other file will be added to and properly sorted in the current file.
- Use the Delete function to delete the entire record currently displayed.

Worksheet



WORKSHEET

To open the file, Budget, and select the spreadsheet application at the same time, position the selection marker over Budget, and press **(ENTER)**. The screen soon shows a spreadsheet for Edwin Raymond's home budget.

WORKSHEET [BUDGET]				02/25/85 10:30am					
1	2	3	4	5	6	7			
1	BUDGET FOR JAN 1985								
2									
3	EXPENSE	BUDGET	ACTUAL	NET					
4	CATEGORIES	AMOUNT	AMOUNT	AMOUNT					
5									
6	Car Paymnt	250.00	250.00	.00					
7	Car Gas	80.00	60.00	20.00					
8	Home Gas	50.00	87.13	-37.13					
9	Electric	75.00	39.89	35.11					
10	Water	25.00	17.25	7.75					
11	Phone	50.00	61.10	-11.10					
12	Rent	400.00	400.00	.00					
13	Insurance	65.00	65.00	.00					
14	Grocery	150.00	113.57	36.43					
15	Fun	100.00	165.00	-65.00					
16									
17	TOTALS	1245.00	1258.94	-13.94					
Select Command:				Free Memory XXXXX					
R 1 C 1									
[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Find	Calc	Formula	Text	Format	Merge	Select	Copy	Delete	Insert

The filename and time are displayed on the top line of the screen. The visible part of the screen is just a small portion of a *worksheet* on which you can enter data. A worksheet can have as many as 99 columns and 99 rows, while one screen of a worksheet (called a *window*) consists of 17 rows and 7 columns. The highlighted rectangular box that is currently positioned at Row 1, Column 1 (Cell 1,1) is called the entry marker.

The blank line above the **Select Command** is the data entry line. As you type data, it is displayed both on the data entry line and in the cell in which the entry marker is positioned. When you press **(ENTER)** (or an arrow key), the data is entered into the cell, and the data entry line is blank so that you can enter new data. Below the data entry line is the command line at which you are prompted to select a command. Sometimes, additional instructions are displayed on the command line for you to specify exactly what you want done.

Below the command line, and right above the label lines, is the cell status line that shows the cell currently highlighted by the entry marker (R1C1), the contents of the cell (this cell is empty), and the amount of free memory you have to enter data.

Creating a Simple Budget Worksheet

This budget compares Edwin's budgeted amounts for expense categories with the actual amounts he spent during the month of January. You are going to re-create this worksheet, step by step, to learn how to use the Worksheet's basic functions.

1. Press **(F12)** to return to the Main Menu.
2. Move the selection marker over Worksheet, and press **(ENTER)**. The screen soon shows a blank screen for creating a new worksheet.
3. On the command line, you are prompted to enter a filename for the spreadsheet you are about to create. Type **Example** **(ENTER)** for the filename.

Entering Labels and Text Data

You begin by entering the column and row headings.

1. Press **(CAPS)** once to enter these labels in capital letters.
2. In Cell 1,1, the cell on which the marker is positioned, type **EXPENSE**. Note that **Select Command** is replaced by **Enter Text** to show the type of contents the cell contains.
3. Press **(↓)** to move the marker to Cell 2,1 (Row 2, Column 1), and type **CATEGORIES**.

Note: Remember that if you make mistakes in typing, you can use **(BACKSPACE)** and delete the previous character.

4. Press **(←)** and **(↓)** to move the marker to Cell 1,2. Press the space bar 4 times; then type **BUDGET**.
5. Press **(↓)** once, then press the space bar 4 times. Type **AMOUNT** to complete the Column 2 heading.

6. Move the marker to Cell 1,3, press the space bar 4 times; then type **ACTUAL**.
7. Press **⏏**, then the space bar 4 times. Type **AMOUNT** to finish the Column 3 heading.
8. Move the marker to Cell 1,4, press the space bar 4 times; then type **NET**.
9. In Cell 2,4, press the space bar 4 times; then type **AMOUNT**.

Now enter the various expense categories.

1. Press **⌘CAPS** so that you can type both upper- and lower-case letters.
2. Move the marker to Cell 4,1 to enter the first expense category. Type **Car Paymnt**.
3. Press **⏏** to move the marker to Cell 5,1; then type **Car Gas**.
4. Type the rest of the expense categories in Column 1.

Home Gas in Cell 6,1
Electric in Cell 7,1
Water in Cell 8,1
Phone in Cell 9,1
Rent in Cell 10,1
Insurance in Cell 11,1
Grocery in Cell 12,1
Fun in Cell 13,1

5. Move the marker to Cell 15,1 to enter a label for Row 15. Press **⌘CAPS**; then type **TOTALS**.

Tutorial

This is the way the basic form of the budget looks.

WORKSHEET [BUDGET]				02/25/85 10:30am					
1	2	3	4	5	6	7			
1	EXPENSE	BUDGET	ACTUAL	NET					
2	CATEGORIES	AMOUNT	AMOUNT	AMOUNT					
3									
4	Car Paymnt								
5	Car Gas								
6	Home Gas								
7	Electric								
8	Water								
9	Phone								
10	Rent								
11	Insurance								
12	Grocery								
13	Fun								
14									
15	TOTALS								
16									
17									
TOTALS									
Enter Text									
R15 C 1									
Free Memory XXXX									
[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Find	Calc	Formula Text	Format	Merge	Select	Copy	Delete	Insert	

Entering Numbers and Formulas

1. To enter the budget amount for the first expense category, Car Payment, move the marker to Cell 4,2, and type **250** **(ENTER)** for the \$250.00 car payment. Note that **Select Command** was replaced by **Enter Number** to show the type of content the cell contains. Since the built-in display format for numbers is for financial data (the dollar format) with 2 decimal places, .00 was automatically added to the 250 you entered. Also, note that a number is right-justified within a cell, whereas text is left-justified.
2. Press **(↓)** to move the marker to Cell 5,2; then type **80** **(ENTER)** to enter the budget amount of \$80.00 for gasoline.
3. Press **(↓)**, and type **50** **(ENTER)** for the budget amount for Home Gas.

4. Type the budget amounts for the rest of the expense categories in Column 2.

75 in Cell 7,2
25 in Cell 8,2
50 in Cell 9,2
400 in Cell 10,2
65 in Cell 11,2
150 in Cell 12,2
100 in Cell 13,2

Next, enter a formula to add these numbers and come up with the total budget amount.

1. Move the marker to Cell 15,2, and press **(F3)** for Formula.
2. Type **SUM(R4)** **(ENTER)**. This formula tells the computer to add the numbers starting from Row 4 to Row 15, the row on which the entry marker is currently positioned. This is a short cut way of entering the formula:

$R4 + R5 + R6 + R7 + R8 + R9 + R10 + R11 + R12 + R13$

Note: Press **(CTRL)** **(F)** to erase values in formula cells.

3. Press **(F2)** to calculate the formula. The calculated budget amount total, \$1,245.00, is soon displayed in Cell 15,2.
4. To enter the actual amount spent for the first expense category, Car Payment, move the marker to Cell 4,3, and type **250** **(ENTER)**.
5. Press **(↓)** to move the marker to Cell 5,3; then type **60** **(ENTER)** to enter \$60.00 for the amount actually spent for gasoline.
6. Type the actual amounts for the rest of the expense categories in Column 3.

87.13 in Cell 6,3
39.89 in Cell 7,3
17.25 in Cell 8,3
61.10 in Cell 9,3
400 in Cell 10,3
65 in Cell 11,3
113.57 in Cell 12,3
165 in Cell 13,3

Tutorial

Now enter a formula for calculating the total actual amount spent.

1. Move the marker to Cell 15,3, and press **(F3)**.
2. Type **SUM(R4)** **(ENTER)**.
3. Press **(F2)** to calculate the formula. The total actual amount, \$1,258.94, is soon displayed in Cell 15,3.

You need to enter 1 more formula to calculate the net amounts in Column 4.

1. Move the entry marker to Cell 4,4, and press **(F7)** for Select.
2. Press **(↓)** 11 times to indicate that Rows 4 through 15 are a single block and that all values in Column 4 are calculated using the same formula.
3. Press **(F3)**, and type **C2 - C3** **(ENTER)**. This formula takes each budget amount in Column 2 and subtracts the corresponding actual amount in Column 3 to calculate and display the net amount for that particular expense category in Column 4.
4. Now, press **(F2)** to calculate the net amounts. The computed results are displayed row by row, expense category after expense category.

Enter a title for the worksheet as a finishing touch.

1. Press **(CTRL) (↑)**; then **(CTRL) (←)** to move the cursor to Cell 1,1.
2. To insert 2 blank rows to make room for the title at the top of the worksheet, press **(CTRL) (←)** to move the marker to the column containing the row number labels, and then press **(F10)** twice to Insert 2 rows.
3. Press **(←)** twice to move the marker to Cell 1,2.
4. Type **BUDGET FOR**.
5. Press **(←)**; then press the space bar once, and type **JAN 1985** **(ENTER)**.

Printing a Worksheet

Now that the entire budget worksheet is finished, you are ready to print it. If an entire worksheet fits on the screen, you can do a *window print*.

1. Before using the print function, make sure that your printer is on-line and that the paper is advanced so that printing will begin about an inch or so from the top of the paper (about 6 lines from the top).
2. Next, check the printer settings. Press **(ALT) (F6)**.
3. You don't need to change any settings; so press **(F12)** to return to Worksheet.
4. Now, press **(SHIFT) (PRINT)**. The printed copy looks like the one below.

WORKSHEET [BUDGET]				02/25/85	10:30am				
1	2	3	4	5	6	7			
1	BUDGET FOR JAN 1985								
2									
3	EXPENSE	BUDGET	ACTUAL	NET					
4	CATEGORIES	AMOUNT	AMOUNT	AMOUNT					
5									
6	Car Paymnt	250.00	250.00	.00					
7	Car Gas	80.00	60.00	20.00					
8	Home Gas	50.00	87.13	-37.13					
9	Electric	75.00	39.89	35.11					
10	Water	25.00	17.25	7.75					
11	Phone	50.00	61.10	-11.10					
12	Rent	400.00	400.00	.00					
13	Insurance	65.00	65.00	.00					
14	Grocery	150.00	113.57	36.43					
15	Fun	100.00	165.00	-65.00					
16									
17	TOTALS	1245.00	1258.94	-13.94					
Select command									
R	1	C	1			Free Memory 58888			
[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Find	Calc	Formula	Text	Format	Merge	Select	Copy	Delete	Insert

5. After the printer has stopped, press **(F12)** to save the worksheet and return to the Main Menu.

Setting Up an Amortization Table

Now that you have finished constructing a simple worksheet, you may want to experiment with some of the Worksheet's more complicated and sophisticated features. In the following example, you create a spreadsheet for an amortization schedule.

For each period, the fixed monthly payment is calculated and broken down into its 2 components: the interest and principal payments. There are 3 variables in this example: the original amount of the loan, the interest rate, and the number of periods over which the loan is amortized. The spreadsheet is divided into 2 parts: The top part is for entering the values for the variables, and the bottom part is the actual amortization table.

1. Move the selection marker over Worksheet, and press **(ENTER)**.
2. Type **Table (ENTER)** for the filename of the worksheet you are creating.
3. At Cell 1,1, type **LOAN AMT**.
4. Press **(↓)** to move the entry marker to Cell 2,1 (Row 2, Column 1); then type **INT RATE**.
5. Next, move the entry marker to Cell 3,1, and type **PERIODS**.

Now, you want to instruct the program to let you enter these values when you use the Calculate function.

1. Move the entry marker to Cell 1,2, next to LOAN AMT, press **(F3)** for Formula, and type **?LOAN (ENTER)**.
2. Move the entry marker to Cell 2,2, press **(F3)**, and type **?INTEREST (ENTER)**, so that later you will be prompted to enter a constant value for the interest rate.
3. Move the entry marker to Cell 3,2, press **(F3)**, and type **?PERIODS (ENTER)**.

The next step is to enter headings for the 7 columns.

1. Move the entry marker to Cell 5,1, and type **Period**.
2. Press **(→)**, and type **Balance**.
3. Press **(→)** to move the cursor to Cell 5,3, and type **Payment**.

4. In Cell 5,4, type **Interest**, press **⏏**; then right below Interest in Cell 6,4, type **Payment** to complete the heading for Column 4.
5. In Cell 5,5, type **Principal**, press **⏏**, and type **Payment**.
6. Move the entry marker to Cell 5,6, type **Cumulative**; then in Cell 6,6, type **Interest** to complete the Column 6 heading.
7. For Column 7, the last heading, type **Cumulative** in Cell 5,7, and type **Principal** in Cell 6,7.

Before you enter formulas, the spreadsheet needs to be formatted differently so that Columns 6 and 7 don't run together. To create more space between the columns, you are going to change the present (default) width of all columns from 10 to 11.

1. Press **CTRL** **↑** to move the entry marker to the top row; then press **CTRL** **↓** to move the entry marker to the line containing the column numbers.
2. Press **F5** for Format, and type **ALL,11** **ENTER** to change the column width to 11 characters.

Entering the Amortization Formulas

The next step is to enter formulas for these 7 columns. Column 1 is for entering all periods the loan covers. For example, this is a 1-year loan, and thus has 12 periods.

1. Move the entry marker to Cell 8,1, and type **1** **ENTER**.
2. Move the entry marker to Cell 9,1, and press **F7** for Select.
3. Press **↓** 10 times to indicate that Rows 9 through 19 are a single block and that all values in Column 1 are calculated using the same formula.
4. Press **F3** for Formula, and type **R8 + 1** **ENTER**.

5. Press **(F2)** to calculate.

The formula tells the program to take the value in the preceding row and the same column, add 1; then display that value in the next row. For example, move the entry marker to Cell 19,1. The value in the last row selected, Row 19, will be the value in Row 18 (11), plus 1, or 12, the last period in the loan. Thus, the original formula entered, **R8 + 1**, changes for each row so that when the value for Period 12 in Row 19 is calculated, the formula is **R18 + 1**.

Next, you are going to format Column 1 so that the period numbers don't run into the calculations that will be displayed in Column 2.

1. Move the entry marker to Cell 8,1, press **(F7)**; then select Rows 8-19.
2. Press **(F5)** for Format, and type **LI (ENTER)**. **L** stands for left-justified, which means that the contents of all the selected cells will be flush left within the cell instead of the default right-justified format for numbers and calculated values. You also specified an integer (**I**) format, since the period numbers did not need to be shown in dollar, 2-decimal format.

Column 2 shows the balance, the unpaid principal portion of the original loan amount.

1. Move the entry marker to Cell 8,2. The balance for Period 1 is the entire amount of the loan that you will enter later as a constant value in Cell 1,2.
2. Press **(F3)**, and type **R1C2 (ENTER)**.
3. Move the entry marker to Cell 9,2, press **(F7)** for Select; then use the arrow keys to highlight Rows 9-19.
4. Press **(F3)**, and type **R8C2 - R8C5 (ENTER)**. This formula takes the value in the preceding row and the same column (the balance of the previous period), subtracts the value in the preceding row in Column 5 (the principal payment of the previous period) and displays the result in the next row. Therefore, the value in the last row selected (the balance of Period 12), Row 19, equals the Period 11 balance in Row 18 less the principal payment paid in Period 11, shown in cell 18,5. When the value in Cell 19,2 is calculated, the original formula is changed to **R18C2 - R18C5**. (You can move the entry marker to Cell 19,2 to see that this is true.)

All values in Column 3 are the same to show the fixed payment that is paid every month on the loan.

1. Move the entry marker to Cell 8,3, press **(F7)**; then select Rows 8-19.
2. Press **(F3)**, and type **#R1C2*#R2C2/(1- 1/(1 + #R2C2) !#R3C2)** **(ENTER)**. The number sign (#) preceding a cell number indicates to **always** use the value in that particular cell. In other words, the original formula entered does **not** change for each row.

Note: This formula written in normal fashion is:

Fixed payment = (Loan Amt. x Int. Rate) / (1 - 1/(1 + Int. Rate)ⁿ) where Loan Amt. = original amount of entire loan, Int. Rate = interest rate per period, and n = number of periods.

This complicated-looking formula defines the numerator as the value in Cell 1,2 (**LOAN AMT**) multiplied (*) by the value in Cell 2,2 (the interest rate). The denominator is 1 minus 1 over 1 plus the value in Cell 2,2 (**INT RATE**) raised to the value in Cell 3,2. The number of **PERIODS** becomes an exponential power indicated by ! .)

Column 4 shows the interest portion of each payment, which is the balance for a period multiplied by the interest rate.

1. Move the entry marker to Cell 8,4, press **(F7)**; then select Rows 8-19.
2. Press **(F3)**, and type **#R2C2 * C2 (ENTER)**. For a particular period, this formula takes the value in the same row in Column 2 (a period's balance) and multiplies it by the interest rate you enter in Cell 2,2.

The principal payment of each period, the part of the total payment which actually goes to paying off the balance of the loan, is displayed in Column 5.

1. Move the entry marker to Cell 8,5, press **(F7)**; then select Rows 8-19.
2. Press **(F3)**, and type **C3 - C4 (ENTER)**. This formula takes the total payment value in Column 3 and subtracts the corresponding interest payment in Column 4 to come up with that period's principal payment.

Column 6 shows the cumulative interest, the interest paid-to-date for each period.

1. Move the entry marker to Cell 8,6, press **(F7)**; then select Rows 8-19.
2. Press **(F3)**, and type **CMT(#R8C4)** **(ENTER)**. This formula gives the accumulated totals for all 12 periods plus the final total of all the values in Column 4, starting with Row 8, and displays these values in Column 6. For example, the interest paid-to-date for Period 4 is displayed in Cell 11,6 and equals the values of Cells 8,4, 9,4, 10,4, and 11,4. **CMT** stands for *column summation*, and **#R8C4** tells the computer to always start the cumulative summing from Cell 8,4 (the interest paid in Period 1).

The last column is for the cumulative principal, the principal paid-to-date for each period. (After all 12 periods have been calculated, the last figure in this column, the cumulative principal for Period 12, will equal the original amount of the loan.)

1. Move the entry marker to Cell 8,7, press **(F7)**, and select Rows 8-19.
2. Press **(F3)**, and type **CMT(#R8C5)** **(ENTER)**. The increasing values in this column show how the loan is gradually being paid off and retired.

Calculating and Reformatting a Worksheet

The spreadsheet is now completely set up, and you are ready to perform calculations.

1. Press **(CTRL)** **(↑)**; then **(CTRL)** **(←)** to move the entry marker to Cell 1,1. This example involves an 18% 1-year loan for \$1000.00.
2. Press **(F2)** for Calculate. You are prompted to enter the **LOAN AMT.**
3. Type **1000** **(ENTER)**.
4. Type **0.015** **(ENTER)** for the **INT RATE.** (Remember, you need to divide the annual interest rate by 12 to get the monthly interest rate.)

5. Type **12** (ENTER) for the number of **PERIODS**. After you enter a value for the last constant, the computed results are displayed row by row, period after period.

Note: The built-in display format for numbers is the \$ format with 2 decimal places. Although you cannot see the 5 you entered for 15.5%, it is in memory and was used during calculations.

You need to make a few final touches to make the spreadsheet look more professional. Although you want the data in the amortization table to be displayed in dollar and cents format (2 decimal places), the interest rate cell needs to be modified to include up to 4 decimal places to cover the most common interest rate possibilities.

1. Move the entry marker to Cell 2,2, and press (F5) for Format.
2. Type **D** (ENTER) so that you can change the default number of decimal positions; then type **4** (ENTER). Now you can see the 5 that you entered earlier.
3. To specify an integer (**I**) format for the number of periods entered, move the entry marker to Cell 3,2, press (F5); then type **I** (ENTER).
4. Move the entry marker to Cell 5,2, and press (F7).
5. Press (SHIFT) (⇐) to select all the columns in the current window through Column 7.
6. Press (⇩) to select the label lines.
7. Press (F5) for Format; then type **R** (ENTER) to right-justify the contents of all selected cells.

Entering Free-Form Text

There are 2 ways you can enter text: by cell or by block.

- For simple row and column labels that don't require more than 1 or 2 cells, position the entry marker on the cell in which you want the text to appear; then type the text, and press **(ENTER)** (as you did when entering the column and constant labels).
- To type a paragraph or block of text, use Select to define the area in which you want to type; then use the Text function to type the desired text.

The Text function lets you type free-form text rather than cell by cell. For example, suppose that you want to add an explanatory note to the amortization table.

1. Move the entry marker to Cell 21,1, and press **(F7)**.
2. Press **(↓)** once to include the next row; then press **(←)** 4 times.
3. Press **(F4)** for Text.
4. Type **NOTE: Personal loan received 2/28/85 from Saginaw Credit Union.**
5. To exit the Text function, press **(F12)**.

Just as in the Text application, word wrapping is automatic, and limited editing features are included, such as deleting, inserting, and formatting text. See the Reference Manual for details on editing text within the Worksheet application.

Printing a Large Worksheet

Before using the print function, make sure that your printer is on-line and that the paper is advanced so that printing will begin about an inch or so from the top of the paper (about 6 lines from the top).

1. To check the printer settings, press **(F11)**; then **(ALT) (F6)**.
2. Type **0 (ENTER)** for Left Margin and **79 (ENTER)** for Printed Line Width.
3. Press **(F12)** to return to the Worksheet screen.

Since the amortization table is larger than one window, you need to select the area you want to print, and then use the Print command.

1. To quickly move the entry marker to Cell 1,1, press **(F1)** for Find. You can use the Find function to search for a specific string of characters (or numbers) or a specific cell.
2. Type **R1C1 (ENTER)** for Cell 1,1.
3. Press **(F7)** for Select.
4. Press **(SHIFT) (←)** to select Columns 1-7.
5. Press **(SHIFT) (↓)**, then press **(↓)** 5 times to select Rows 1-22.
6. Be sure that your printer is ready; then press **(PRINT)**.

Your printout should look like this. (Compare your figures to make sure you entered all formulas correctly.)

LOAN AMT 1000.00
 INT RATE 0.0150
 PERIODS 12

Period	Balance	Payment	Interest Payment	Principal Payment	Cumulative Interest	Cumulative Principal
1	1000.00	91.68	15.00	76.68	15.00	76.68
2	923.32	91.68	13.84	77.83	28.84	154.51
3	845.48	91.68	12.68	78.99	41.53	233.50
4	766.49	91.68	11.49	80.18	53.02	313.69
5	686.30	91.68	10.29	81.38	63.32	395.07
6	604.92	91.68	9.07	82.60	72.39	477.68
7	522.31	91.68	7.83	83.84	80.23	561.52
8	438.47	91.68	6.57	85.10	86.81	646.63
9	353.37	91.68	5.30	86.37	92.11	733.00
10	266.99	91.68	4.00	87.67	96.11	820.68
11	179.31	91.68	2.68	88.99	98.80	909.67
12	90.32	91.68	1.35	90.32	100.16	1000.00

NOTE: Personal loan received 2/28/85 from Saginaw Credit Union.

1. To see the powerful recalculation ability of the spreadsheet application, press **(F2)**.
2. Suppose that you are calculating a one-year loan for \$1000 at 15%. Because the previous value was also 1000, press **(ENTER)** for the **LOAN AMT** in 2, 1.
3. For the new interest rate, type **0.0125 (ENTER)** (15% divided by 12).

4. For number of periods, press **(ENTER)**. The lengthy, detailed calculations are performed almost instantly, saving you hours of calculating the formulas by hand. Note that with the lower interest rate, the fixed payment, shown in Column 3, has decreased from \$91.68 to \$90.25.

Other Functions

You may want to experiment with some of the other functions available in Worksheet. See the Reference Manual for details on using these functions. When you are finished using the spreadsheet program, press **(F12)** to save the Table Worksheet file. Press **(Y)** to confirm and return to the Main Menu.

- Use Merge to save a Selected block to diskette (without exiting the spreadsheet as **(F12)** does) or to load and insert data from another spreadsheet file at the current entry marker position.
- Use Copy to copy a Selected spreadsheet (or part of a spreadsheet) to an ASCII file. You can then copy the ASCII file to a text file. You can also use Copy to copy the contents of a row or column for insertion in another row or column.
- Use the Delete function to delete the contents of a cell or a Selected block of cells. You can also use Delete to erase not only the data contents of an entire column (or row) but also any formula associated with that column (row). (For this procedure, you position the cursor in the appropriate column label area.) The data and formula in that column (row) is erased, and the data in the next column (row) shifts to the left (or up, in the case of a row). The column (row) numbers in formulas are changed so that the same values are used in calculations.

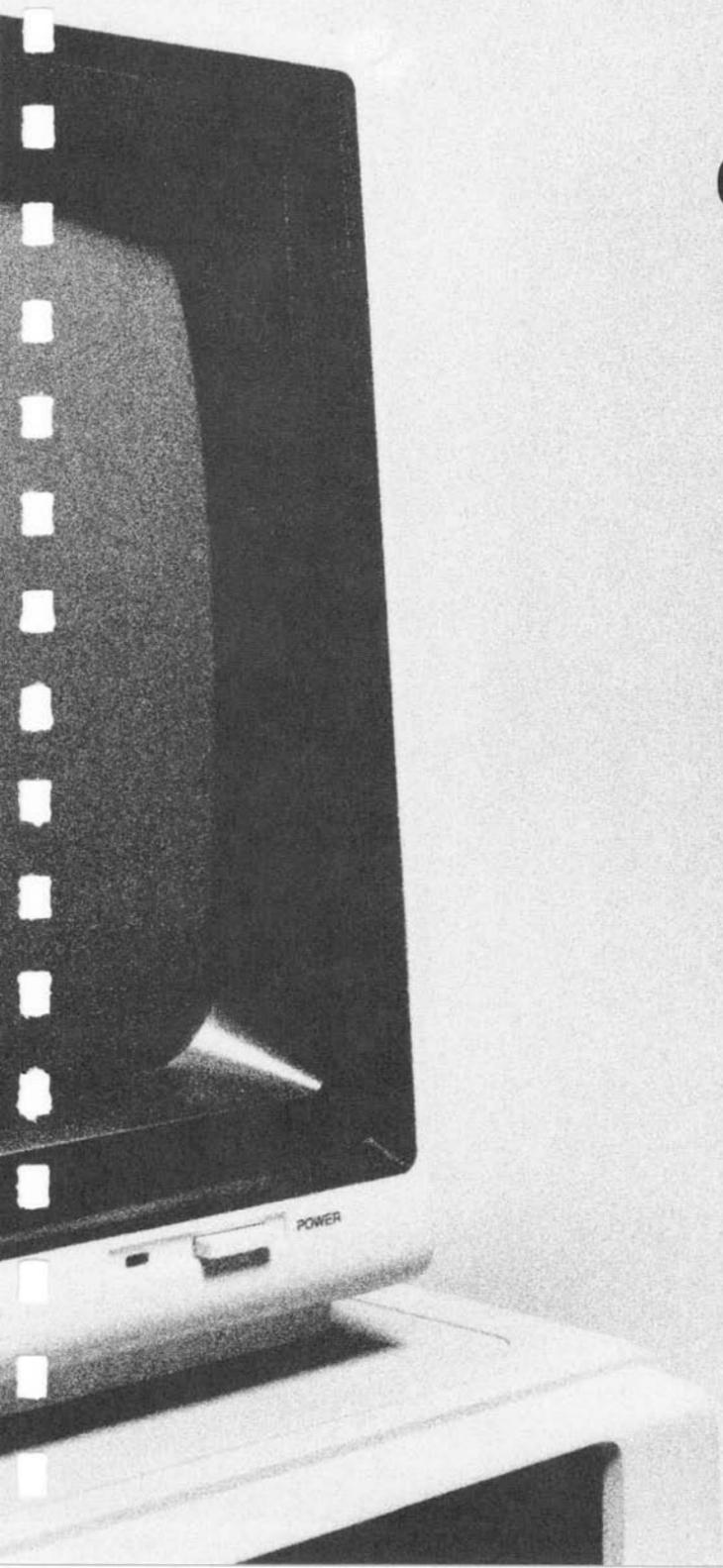
- Use Insert to insert the contents of the copy buffer in another row or column. You can also use Insert to insert a blank row or column. (For this procedure, you position the cursor in the appropriate column label area.) The data and formula originally in that row (column) shift downward (or to the right, in the case of a column).

Note: As in the Text application, there are 2 ways of exiting Worksheet.

Press **(F12)** to save a brand new worksheet or any editing changes made to an old worksheet.

Press **(SHIFT) (F12)** if you changed the contents of a worksheet and then decided you wanted to keep the unedited version. **(SHIFT) (F12)** lets you retain the original worksheet and exit the Worksheet application.

Calendar



The top block on the left shows the schedule for the current week with the days of the week in the vertical column (always starting with the current day) and the hours of the day in the vertical line (starting with 12:00 a.m.). A period indicates a free time slot, that is, a time slot that has not been scheduled for an event. For example, note that there is nothing scheduled for 7:00 a.m. or 6:00 p.m. on Monday.

A time slot that has been taken by an event previously entered for the current week is indicated by *. For example, you can tell that Monday is the busiest day of the week, since it is almost full of *s. A ! indicates a time conflict, two different events scheduled for the same time. Looking at today's schedule, you can see that two events are scheduled for 8:30 a.m.

The bottom half of the screen shows the itemized agenda of events for the current day. All events and appointments displayed are scheduled for today's **Date**, 02/25/1985. The next column, **Begin**, shows the time at which the event begins. The time at which the event ends is shown under the **End** column. A **Description** of the event is shown in the last column.

You can change or delete events previously entered for the day's agenda and add new ones. For example, the name in the third event listed should be *Williams* instead of **Wilson**.

1. Press **↑** 2 times to move the marker to the third line, and press **(SHIFT) ←** 3 times to skip the first 3 *fields*. (A field is a unit of information.)
2. Press **←** until the cursor is over the **s** in **Wilson**, then type **liams** **(ENTER)**. You are always in *overstrike* mode while using Calendar so that you can quickly correct mistakes by typing over them.

Finding Events

1. Press **(F1)** for Find.

The lower half of the screen clears and changes to:

Date	Begin	End	Description
=02/25/1985	===;***a	===;***a	*****

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Equal	Greater	Less		Reset					

2. To find all events/appointments scheduled on or after February 25 associated with Mrs. Williams, press **(F2)** and **(ENTER)** for Greater. Calendar finds all events scheduled on or after February 25.
3. Press **(ENTER)** twice to skip the **Begin** and **End** fields.
4. For **Description**, press **(-)** once to skip over the first asterisk (*), and type **Williams**. * is a *wildcard* character that tells Calendar to ignore all characters before and after **Williams** in the **Description** field and to list every occurrence with the name, Williams, in it.
5. Press **(F12)** to return to the original Calendar screen and display the events that match the Find criteria.

You now see these events listed:

Date	Begin	End	Description
02/25/1985	00:00a	00:00a	Write confirmation letter to Williams
03/03/1985	12:00p	02:00p	Williams' luncheon for 8
03/12/1985	03:00p	04:30p	Afternoon tea for Williams - 6 people
03/15/1985	02:00p	05:00p	Bridge at Williams' house
03/19/1985	09:00a	11:00a	Williams' business breakfast at Club
03/26/1985	08:00p	10:30p	Williams' dinner for 10
03/31/1985	07:30p	11:00p	Reception for Williams at Club - 60 people

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Equal	Greater	Less		Reset					

Note: Use the Date function (**F2**) to find and display all events that fall on a certain date. Use the Find function when you want to find and display events that match other search criteria, as in the previous example.

Adding and Deleting Events

The same event you inserted in the letter while using Text needs to be added to the Calendar file.

1. Press **F10**.
2. For **Date**, type **03011985** **ENTER**.
3. After the cursor moves to the **Begin** field, type **1p** **ENTER** for 1:00 p.m.
4. For the **End** time, type **4:30p** **ENTER**.

5. For **Description**, type **Bridal Shower for Williams - 15 people** (ENTER).

Note: You can add an event anytime and anywhere on the screen. Calendar sorts the events chronologically and puts them in the appropriate date and time slot.

The 2 events scheduled for March 15th and 19th have been cancelled. To delete these events, first use Select to mark the events; then use the Delete function.

1. Use (↓) to move the marker to the line on which the March 15th event is displayed.
2. Press (F7) for Select.
3. To include the next event, press (↓) so that both events are highlighted, and press (F9) for Delete. The selected events are erased, and the events below move up automatically.

Before printing the events that match the current Find criteria, be sure that your printer is on-line.

1. Press (ALT) (F6) to see the current printer settings.
2. Type 5 (ENTER) for **Left Margin** and 78 (ENTER) for **Printed Line Width**.
3. Press (F12) to return to the Calendar screen.
4. Press (F4) for Print.

Putting Events into the Alarm File

Edwin wants to update his schedule by putting the first half of March's planned events into the Alarm file (the first 3 events through March 12th). To do this, you must select the desired events, and then use the Alarm function.

1. Move the marker to the line containing the March 1st event, and press (F7).

2. Press **(I)** twice to select the March 1st, 3rd, and 12th events; then press **(F5)** for Alarm. These 3 events are now in the Alarm file as well as in the original Calendar Agenda file.

The reminder time for an event is set at 30 minutes prior to the scheduled **B e g i n** time entered for the event. When Alarm is active and turned on to remind you of events, you hear a beep when an event's remind time occurs. (See the next section, "Alarm," for more details.)

3. Before returning to the Main Menu to select the Alarm application, read the notes below on the Merge and Copy functions. After you are finished, press **(F12)**.

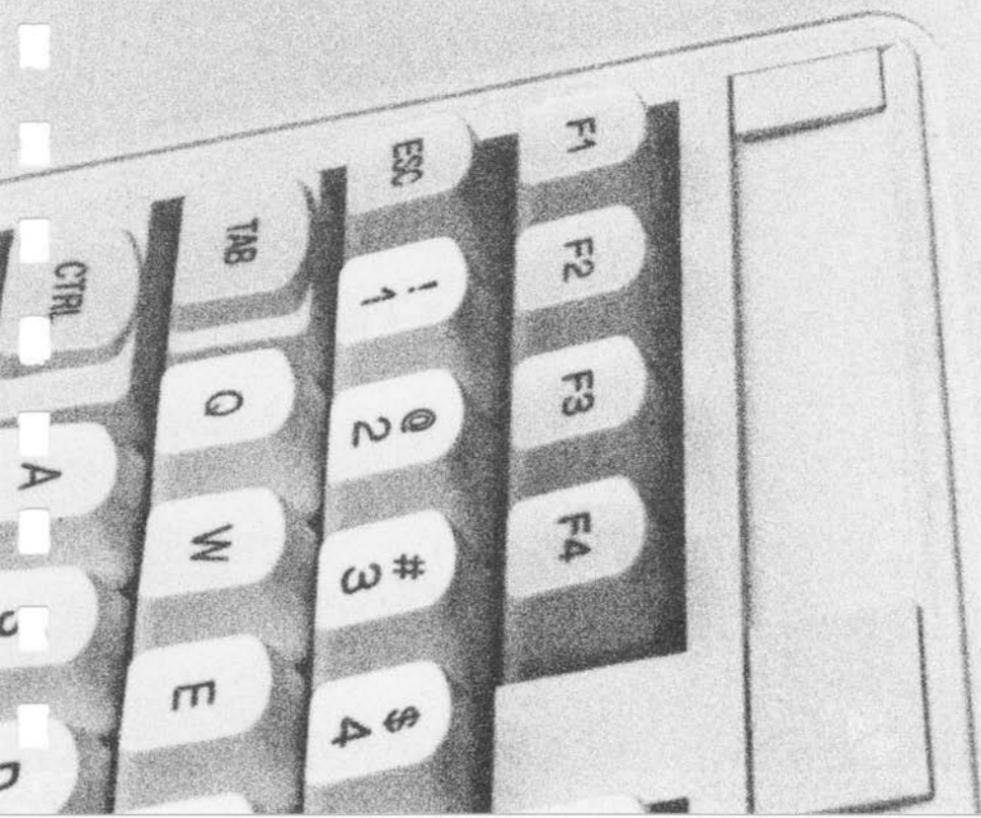
Other Functions

- Use the Merge function when you want to add all the events **F r o m** another Calendar file to the current Calendar file or add certain events of the current Calendar file **T o** another Calendar file. For example, suppose that you have two Calendar files, Business and Personal, and that you are currently in the Business file. You would use the Merge function to add all the events **F r o m** the Personal file to the Business file. The newly added events are sorted chronologically in the current file.

If you want to add events of the current file **T o** another Calendar file, first use the Select function to pick the desired events. Then use the Merge function to specify **T o** which file you want to add the selected events.

- The Copy function is very similar to the **T o** option of Merge, except that you are copying selected events **T o** a Text file. To use Copy, first mark the desired events using the Select function. Then use the Copy function to specify **T o** which Text file you want to add the selected events. The copied events are added to the end of the Text file.

Alarm



Chapter 8

ALARM

1. Select Alarm by pressing **(F4)** at the Main Menu. The screen soon shows the same February 25th events you saw in Calendar, plus the March events you merged into the Alarm file, except that the **Remind@** time is included.

Alarm Remind@	Date	Begin	End	Description	02/25/1985	10:30am
00:00a	02/25/1985	00:00a	00:00a	Make appointment with accountant		
00:00a	02/25/1985	00:00a	00:00a	Mom's birthday - call florist		
00:00a	02/25/1985	00:00a	00:00a	Write confirmation letter to Wilson		
05:00a	02/25/1985	05:30a	06:15a	Shop at fish and produce wholesale markets		
07:00a	02/25/1985	07:30a	08:30a	Meet Bill at gym		
08:00a	02/25/1985	08:00a	11:15a	Prepare food for Davis luncheon		
11:15a	02/25/1985	11:45a	01:30p	Luncheon at Riverdale Country Club		
01:30p	02/25/1985	02:00p	02:30p	Meeting with Club President		
02:30p	02/25/1985	03:00p	05:30p	Prepare food for Roach dinner		
05:45p	02/25/1985	06:30p	10:00p	Dinner at 7400 Seventh Street		
10:00p	02/25/1985	10:30p	12:00p	Pick up cake and go to Mom's		
12:30p	03/01/1985	01:00p	04:30p	Bridal shower for Williams - 15 people		
11:30a	03/03/1985	12:00p	02:00p	Williams, luncheon for 8		
02:30p	03/12/1985	03:00p	04:30p	Afternoon tea for Williams - 6 people		

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
					Merge	Select	Copy	Delete	Add

Events scheduled for the current date in the Alarm file are displayed on the Main Menu to remind you of special occasions. You can enter events in Alarm or Calendar. The only difference is that when you add events using Alarm, you manually enter the **Remind@** time. The events displayed above were entered in Calendar, and then placed in the Alarm file. The **Remind@** time was automatically assigned.

Just like Calendar, you can change or delete displayed events or add new ones. To change information, move the marker to the desired field by pressing **(ENTER)**, and type over the existing characters.

2. Suppose that on February 25 you want to change the **Remind@** time of the 3:00 event from 02:30 p.m. to 02:45. Press **(↑)** to move the cursor to the 02:30p **Remind@** time, and then type **02:45p (ENTER)**.
3. Change the name in the third event listed from Wilson, to Williams, as you did in Calendar.

Edwin has decided to have a breakfast meeting with his attorney at 7:00 a.m. instead of meeting Bill at the gym.

1. Move the cursor to the event with the 7:00a **Remind@** time, and press **(F9)** for Delete.
2. Press **(F10)** to Add an event.
3. Type **6:30a** **(ENTER)** for the **Remind@** time.
4. For **Date**, press **(ENTER)** to use the displayed system date (02/25/1985).
5. Type **7a** **(ENTER)** for **Begin** time, then type **8a** for **End** time.
6. For the **Description**, type **Breakfast w/ lawyer @ Annie's** **(ENTER)**. After you enter all information for the event, it is automatically inserted in the appropriate time slot.

Note: You could also have simply typed over the existing information for the previous 7:00 appointment.

Turning on the Alarm

1. Press **(F12)** to return to the Main Menu.
2. To turn on Alarm, press **(ALT) (F4)** to change Alarm Off to Alarm On. (Press **(F11)** if you want to view the subfunction menu first.) When Alarm is switched On and set to remind you of events, the Alarm's beep goes off when an event's **Remind@** time matches the current time. Also, whenever the date and time are displayed in the upper right corner of the screen, you see the @ symbol next to the date/time information to let you know that the Alarm is turned on.

Note: You cannot turn the Alarm On while you are in the Alarm screen and the Alarm file is still open. When you add or change events in Alarm, the Alarm file is not updated or reorganized until you close the Alarm file by returning to the Main Menu. Once the Alarm file has been closed, you can turn the Alarm On, and the Alarm system will accurately remind you of upcoming events.

An event is automatically deleted from the Alarm file if it is a past event that was scheduled before the current date. (However, an expired event is not automatically deleted from a Calendar file if it was entered in that application. You must manually delete expired events in a Calendar file.)

When Alarm is active, @ is displayed on the screen. If there are no future events to remind you of, that is, all events have already expired and been deleted from the Alarm file, the @ does not appear. When you turn the computer off, the Alarm automatically shuts Off. When you first power up the computer, remember to turn the Alarm back On.

When you hear a reminder beep, press **(ALT) (F3)** to display the event of which you are being reminded plus the next event. The event information temporarily replaces the label lines of the application you are currently using. Once you have noted the event, you can redisplay the original label lines by pressing **(F12)**.

You can press **(ALT) (F3)** at any time to display the most recently expired event plus the event of which you will be reminded (beeped) next.

3. Press **(ALT) (F3)** now. The Main Menu label lines disappear and you see:

```
02:45p 02/25/1985 03:00p 05:30p Prepare food for Roach Dinner
06:00p 02/25/1985 06:30p 10:00p Dinner at 7400 Seventh Street
```

Note: The events you see at the bottom of the screen will probably be different from those shown above, depending on the time at which your computer is currently set.

4. Press **(F12)** to redisplay the Main Menu label lines. Before proceeding to the next section, "Main Menu," read the notes below on the other available Alarm functions.

Other Functions

- To combine an entire Calendar file with the Alarm file, use the **Merge** function. By using **Merge**, you do not have to enter events twice—once for a Calendar file and once for the Alarm file. For example, suppose that you had completed planning and scheduling all business events for the month of March and that you wanted to put all events in the Calendar file, **Business**, into the Alarm file. You would use **Merge** in this situation to specify **Business** as the file **From** which to merge.

Remember that when you put events in the Alarm file from a Calendar file, either using the Alarm function in Calendar or the Merge function in Alarm, they are automatically assigned a **Remind@** time of 30 minutes prior to the **Begin** time.

- Use the **Select** function to define the events you want to **Copy To** a Text file or the events (in the case of more than one) you want to **Delete**.
- Use the **Copy** function to put the selected events into the copy buffer and then to copy the events **To** a newly created or existing Text file.

Main Menu



MAIN MENU

At the bottom of the Main Menu, you see the following label lines:

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Date	Name	Free	Alarm	Host	Passwd	Select	Copy	Delete	Swap

1. Press **(F1)** to change the system date and time. At the top of the screen, you see the prompt:

date: mm/dd/yy:

2. Type today's date and the current time. For example, if it is currently May 5, 1985 and 1:30 p.m., type **05/05/85 (ENTER)**. At the time prompt type **1:30p**.

Note: When you turn off the computer, the clock stops running. When you first power up the computer, change the time by using this Main Menu function so that DeskMate can accurately keep track of your Alarm events.

Use the Name function to change the name of any DeskMate file.

1. For example, to change the name of the Text file, ADDRESS, to CUSTADDR (for Customer Address), press **(I)** to highlight the ADDRESS file.
2. Press **(F2)** to change the name of the file currently highlighted.
3. Press **(ENTER)** to skip the old filename prompt.
4. Type **CUSTADDR (ENTER)**. Note that the new filename has replaced the old one. (Filenames are always displayed in uppercase.)

Free tells you the approximate amount of additional room on the diskette you can use for entering data.

Press **(F3)** to see the amount of Free space on the data diskette. At the bottom of the screen, you should see the number of bytes free.

Use the Passwd function to specify a **system** password for restricting access to DeskMate by a user at the DeskMate site or a remote site user. Once you assign a password, you must enter that password every time you power up the computer and load DeskMate, and every remote site user who calls up the DeskMate telephone number must first enter the password to gain access to the system.

1. To specify a system password, press **(F6)**.
2. At the system password prompt, type **Fromage (ENTER)**.

Note: The Passwd function can also be used to change or delete passwords.

Suppose you want to have two copies of the CUSTADDR file: one to use for customers and the other to edit for supplier's addresses.

1. Move the selection marker to CUSTADDR, and press **(F8)** for Copy. At the bottom of the screen, you see the prompt:

From filename: CUSTADDR.DOC To filename:

2. The filename of the copy must be different from the original filename. Press **(ENTER)** since you want to copy the displayed file, CUSTADDR. Then, for the new filename, type **Supladdr (ENTER)**. Under the Text column, you now see the original CUSTADDR file plus a copy of that file, SUPLADDR.

Use the Delete function to erase a file. For example:

Move the selection marker to the LHEAD file, and press **(F9)** to Delete the highlighted file. The filename is displayed. Press **(ENTER)**, and the file is erased from both the diskette and the DeskMate directory.

Other Functions

- The Alarm function is described in detail in the previous section.
- The Host function is explained in its own section after “Mail.”
- Use the Select function to mark more than one file in the same application for deletion.
- Use the Swap function to activate a drive not currently in use (2-drive system). For example, if you are currently using Drive A and wish to Swap to Drive B, type **B:** (ENTER).
- You can print the DeskMate files currently displayed on the Main Menu to refer to files when copying or merging. Be sure that your printer is ready, then press (SHIFT) (PRINT).



Telecom

TELECOM

Telecom lets you communicate with a host computer, information service, or another terminal. You can set up communications settings to match those of the host you plan to contact. With the automatic logon function, you can create an auto logon file containing the information needed to automatically dial and sign on to an information service such as Dow Jones. Information you receive can be saved, printed, or stored on diskette for later reference. You can also *upload* (send) files to other computers and terminals.

This sample session shows how to use Telecom with a telecommunications service. It will be necessary to modify the instructions to fit your situation.

Be sure that your computer is properly connected to a telephone using a modem or an acoustic coupler.

To select Telecom from the Main Menu, position the marker over Telecom, and press (ENTER). The screen soon shows the default settings for communications.

```

TELECOM-STATUS                                02/25/85  10:30am
Current Status:
Autodial Modem ----- No      Yes
BAUD Rate ----- 110  150  300  600  1200  2400  4800  9600
Data Word Length ----- 7 BITS  8 BITS
Parity ----- EVEN  ODD  NONE
Number of Stop Bits ----- 1 BIT  2 BITS
XON/XOFF Flow Control --- ON     OFF
ASCII Character Filter --- ON     OFF
Line Feed Filter ----- ON     OFF
Echo (Half Duplex) ----- ON     OFF
Redial (# of Retries) --- 0
                                           FREE RAM: xxxxx

[F1]  [F2]  [F3]  [F4]  [F5]  [F6]  [F7]  [F8]  [F9]  [F10]
Reset  Select  Autolog Editlog Term  Clear  Save  Print  Load  Display

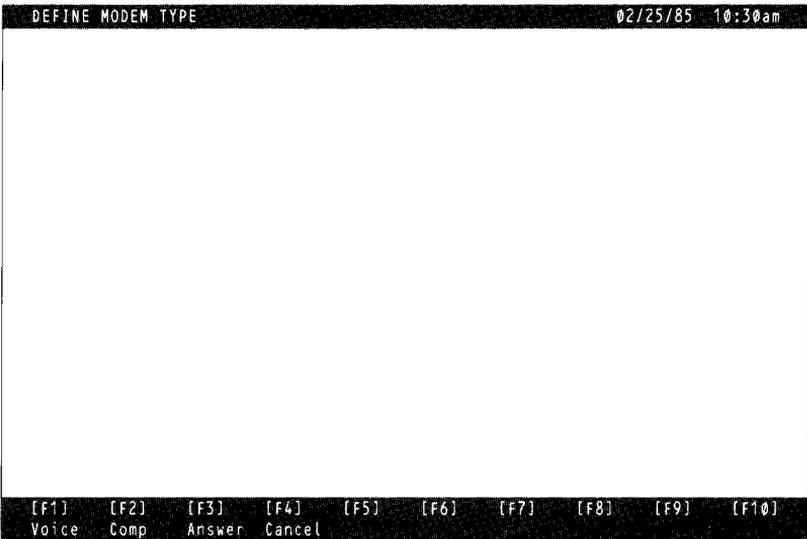
```

If you are using a non-auto dialing modem, you do not need to change the default response for the first setting or read the instructions for auto dialing modems. Proceed directly to the section describing the rest of the communications settings on the Telecom status screen.

Defining Auto Dialing Modem Protocol

1. If you are using an auto dialing modem, press **␣** to move the marker to **Yes**, and press **F2** or **ENTER** to Select that response. A series of screens is displayed for you to define your modem protocol.
2. If you are using a Modem II, follow the instructions below. If you are using another type of Tandy modem, see Appendix B in the Reference Manual for instructions on defining the protocol of your modem. The default settings are for the 300 Baud Modem Option Board. If you are using a modem not made by Tandy, consult the manual that came with your modem for the necessary technical information.

After you select *Yes* for the first status setting, Auto Dialing Modem, the screen shows:



3. Press **[F2]** to define the way your modem automatically dials a telephone number to a terminal, information service, or host computer. The screen soon shows the DEFINE MODEM FOR COMPUTER DIALING screen. (By defining the Computer Dialing sequence, you can use Telecom to communicate with information services, terminals, and other computers.)
4. Change the first line of this dialing sequence by pressing **[F7]** for Delay and typing 5 **[ENTER]**.
5. Change the second line of this dialing sequence by pressing **[F3]** for Send and typing ****ODT [ENTER]**.
6. Move the cursor to WAITC, and press **[F10]**. Press **[F5]** for WAITNC. The screen shows:

```
DEFINE MODEM FOR COMPUTER DIALING                                02/25/85 10:30am
DELAY: 5
SEND: **ODT
RECEIVE: T
NUMBER:
SEND: X
RECEIVE: X
WAITNC
WAITC
```

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Number	Receive	Send	Pause	WaitNC	WaitC	Delay		Delete	Insert

7. Press **[F12]** to return to the DEFINE MODEM TYPE screen.

8. Press **(F1)** for Voice. The screen soon shows the DEFINE MODEM FOR VOICE DIALING screen. (By defining the Voice Dialing sequence, you can use the subfunction, PHONE.)
9. To change the Delay, press **(F7)**, and type **5 (ENTER)**.
10. To change the next line, press **(F3)**; then type ****ODT (ENTER)**.
11. Move the cursor below RECEIVE: X and press **(F5)** for Wait for No Data Carrier Detect. The screen shows:

```
DEFINE MODEM FOR VOICE DIALING                                02/25/85 10:30am
DELAY: 5
SEND: **ODT
RECEIVE: T
NUMBER:
SEND: X
RECEIVE: X
WAITNC
```

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Number	Receive	Send	Pause	WaitNC	WaitC	Delay		Delete	Insert

12. Press **(F12)** to return to the DEFINE MODEM TYPE screen.

13. Press **(F3)** to see the DEFINE MODEM FOR HOST ANSWERING MODE screen. (By defining the answer mode of your modem, you can use the Main Menu function, Host, to let remote-site terminals access DeskMate.)



14. Some auto answering modems need a signal to put them in answer mode. For the Modem II, enter Delay: 5, Send: **C, and Receive: C.

You are now finished defining the protocol of your auto dialing modem.

15. Press **(F12)** to return to the DEFINE MODEM TYPE screen; then press **(F12)** again to return to the STATUS screen.

Note: If you are using the Modem II, the DTR switch at the back of the modem must be in the OFF position. The POWER switch should be ON, and the TEST switch should be OFF. Set the MODE switches to AUTO and ORIG.

Specifying Communications Settings

After you have supplied the necessary technical information on modem protocol, the status screen reappears. The communications parameters shown are preset to be compatible with CompuServe and Dow Jones Information services.

If you are using a different information service, consult your user's guide to determine the settings that are necessary for communications, and then change the required settings. Use the arrow keys to move the selection marker to the appropriate setting, and press **(F2)** or **(ENTER)** to Select that setting.

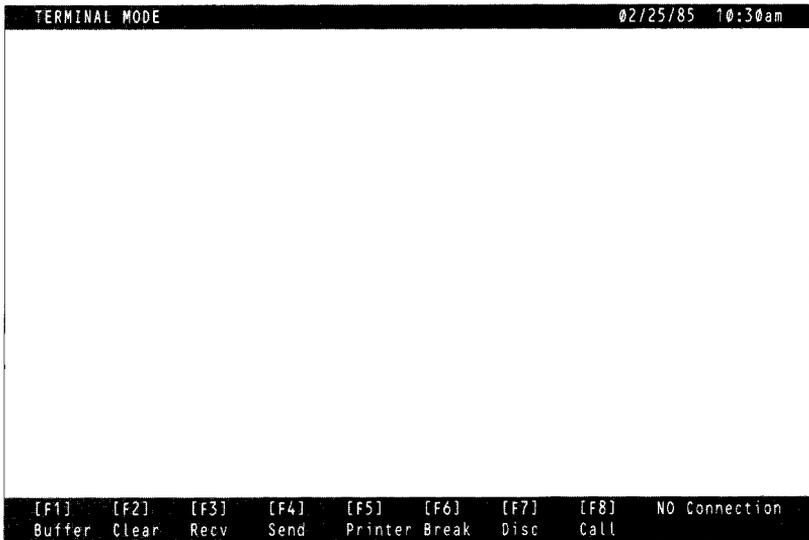
You can change the last prompt, Retries, to make the computer dial again and try to connect to the service if the line was originally busy. For this example, type **3 (ENTER)** to have Telecom try to connect at least 3 times.

Manually Logging On

Now you are going to manually log on to a service while using the Buffer function in Terminal mode to store the logon sequence in memory. Later, after completing the logon procedure, you can either display or print the information temporarily stored in the RAM buffer. (The amount of used and free space in the RAM buffer is shown on the Current Status screen of Telecom.)

1. Press **(F5)** to go into Terminal mode.

The screen shows:



2. If you are using an auto dialing modem, press **(F8)** for Call, then type the Telecommunications Service telephone number you received from that service, and press **(ENTER)**. (If you are using a Modem II, the first 3 lights go on.)

If you are using a non-dialing modem, dial your Service phone number. When the phone has been answered and you hear a high-pitched tone, hang up the phone (or insert the telephone into the acoustic coupler).

Once you have entered or dialed the phone number, you are connected (but not yet logged on).

3. Press **(F1)** to open the RAM buffer. From this point on, the information that appears between the top highlighted line and bottom highlighted lines will be saved in memory.
4. Press **(CTRL) (C)**. You are often asked to enter your User ID.
5. Type the User ID you received with the package, and press **(ENTER)**. You are often then asked to enter your Password.

6. Type your password, and press **(ENTER)**. (To retain the secrecy of your password, it will not appear on the screen when you type it.)
7. You are now logged on and can begin using the telecommunications service.
8. Press **(F1)** to close the RAM buffer, then press **(F7)** to disconnect from the service. Later, after you have created an autolog file, you will log on to your service again and use some of the Terminal mode functions.
9. Press **(F12)** to return to the original Telecom screen.
10. If you have a printer, be sure that it is properly connected to the computer and on-line. To Print the contents of the buffer, press **(F8)**.

If you don't have a printer, press **(F10)** to Display the contents of the buffer.

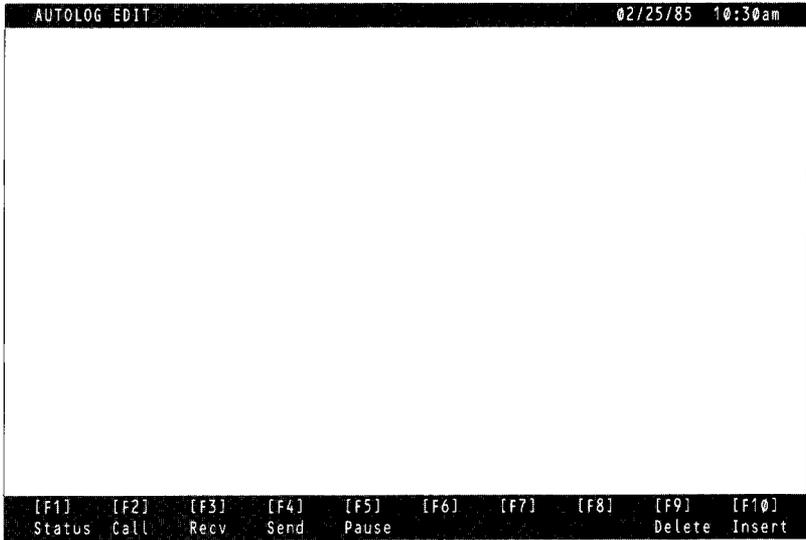
11. Once you have displayed or printed the information, press **(F6)** to Clear the contents of the buffer.

Note: The printout of the buffer contents includes most, but not all, of the information that should be included in an autolog file. For example, certain special characters, such as **(ENTER)** and your password, are not printed.

Creating an Autolog File

1. Press **(F4)** for Editlog to create a file for logging on automatically to a host system.

The screen shows:



Enter log filename:

2. You are asked to enter a name for the autolog file you are editing (or creating for the first time). Type a filename and press **(ENTER)**.
3. Press **(F1)** for Status; then press **(F12)** to include the communications parameters you previously defined in the autolog file.
4. If you are using an auto dialing modem, press **(F2)** for Call to tell Telecom that this entry is a telephone number you want it to dial for you. Then type the service's telephone number. For example type **5551211 (ENTER)**.
5. Press **(F5)** for Pause, and type **2 (ENTER)** to specify a 2 second pause.
6. Press **(F4)** for Send, then type **^C (ENTER)** to start the communication process with the service. The **^C** represents **(CTRL) (C)**.
7. The logon sequence may require the User ID next. To tell the modem to wait for the response from the Service, press **(F3)** for Receive. For example, type **User ID:** for the prompt you receive from the service.

Tutorial

8. Press **(F4)** to send your identification number to the service. For example, type **73333,221^M (ENTER)**. The **^M** represents a carriage return (**(CTRL M)**).
9. Next, suppose the service prompts you to enter your password. Press **(F3)** to specify that the text entered next will be received from the service, then type **Password:**.
10. The next item of the autolog file is your response to the previous request for your password. Press **(F4)** to transmit your password, then type your password, and press **(ENTER)**. For example, type **SECRET^M (ENTER)**.

If you are using an auto dialing modem, your screen should show:

```
AUTOLOG EDIT                                02/25/85 10:30am
STATUS: 30,8,N,1,Y,N,N,N,3
CALL: 5551212
PAUSE: 2
SEND: ^C
RECV: User ID:
SEND: 73333,221^M
RECV: Password:
SEND: SECRET^M

[F1] [F2] [F3] [F4] [F5] [F6] [F7] [F8] [F9] [F10]
Status Call Recv Send Pause Delete Insert
```

(If you are using a non-dialing modem, your screen should be the same, except that the phone number is not included.)

11. To save the autolog file and return to the original Telecom screen, press **(F12) (ENTER)**.

Executing an Autolog File

If you created an autolog file that includes your real ID and password, you can actually try and use it now to log on to your service.

- If you are using an auto dialing modem, press **(F3)** to execute your Autolog file, then press **(ENTER)** to execute the autolog file currently in memory. If you entered the logon sequence correctly, Telecom dials your local access number to the service, makes contact with the information service, then executes the rest of the autolog file automatically.
- If you are using a non-auto dialing modem, press **(F3)** for Autolog, and then dial your service phone number. When the phone has been answered and you hear a high-pitched tone, hang up the phone (or insert the telephone into the acoustic coupler). Then, press **(ENTER)** to execute the autolog file.

Once you are logged on to the service, Telecom automatically goes into Terminal mode, and you can begin using the service with the Terminal mode functions displayed at the bottom of the screen:

```
[F1]  [F2]  [F3]  [F4]  [F5]  [F6]  [F7]  [F8]  No Connection
Buffer Clear Recv Send Printer Break Disc Call
```

Using the Terminal Mode Functions

The Connection status is shown to the the right of the functions. If you lose connection to the Host, you will see No Connection.

Try experimenting with your service using Telecom's features such as Buffer, Receive, and Printer. For example, in the same manner in which you saved the logon sequence in memory, you can save incoming information from the service to print or store on disk.

1. Make a selection from the service's menu.
2. To save data in the RAM buffer, first open the buffer by pressing **(F1)**, then select and display the data you wish.
3. After the data article has been displayed, press **(F1)** to close the Buffer.

- To cut down on your connect time and save on your account bill, you can immediately disconnect from the service, press **(F12)** to return to the original Telecom screen, and then Save the data as a file.
- An alternative way of saving information is to press **(F3)** while in Terminal mode to Receive a file, then specify a filename. Then select the information you want to save and press **(F3)** to close the file. If you do not specify an extension in the filename, .DOC is automatically appended to the filename so that you can read the article later using the Text application.
- You can also print incoming information by using the Printer function. Press **(F5)**, then select the desired information, and press **(F5)** again to stop the printer.
- Just as in Host, with which you will experiment later, you can send and receive files between 2 computers, except that in Telecom both computer users can play an active role and communicate with each other via their computer screens. (In Host, a DeskMate user can go elsewhere, leaving the computer in Host mode to allow another user access to the DeskMate system and files.)
- If you have 2 computers both with telephone hook-ups via a modem or some other device, try calling each other and then mutually sending and receiving information. If you have an auto dialing modem, use the Call function to call the other computer, then use Send and Receive to transmit information back and forth.

Other Functions

- On the Telecom status screen, you can use the Reset function to change the communications parameters back to the default settings. (Remember to Select *Yes* for the first status setting, Auto Dialing Modem.)
- Note also on the status screen that the last 5 functions, Display, Print, Save, Load, and Clear, are all RAM buffer-related functions.
- Later, if you wish to edit an autolog file, use the Delete and Insert functions on the Editlog screen to change line entries.
- In Terminal mode, you may need to use the Break function in addition to Disc to complete the log off process.
- If you save information, use the Text application to read and edit any unnecessary control characters that were transmitted from the Host system.

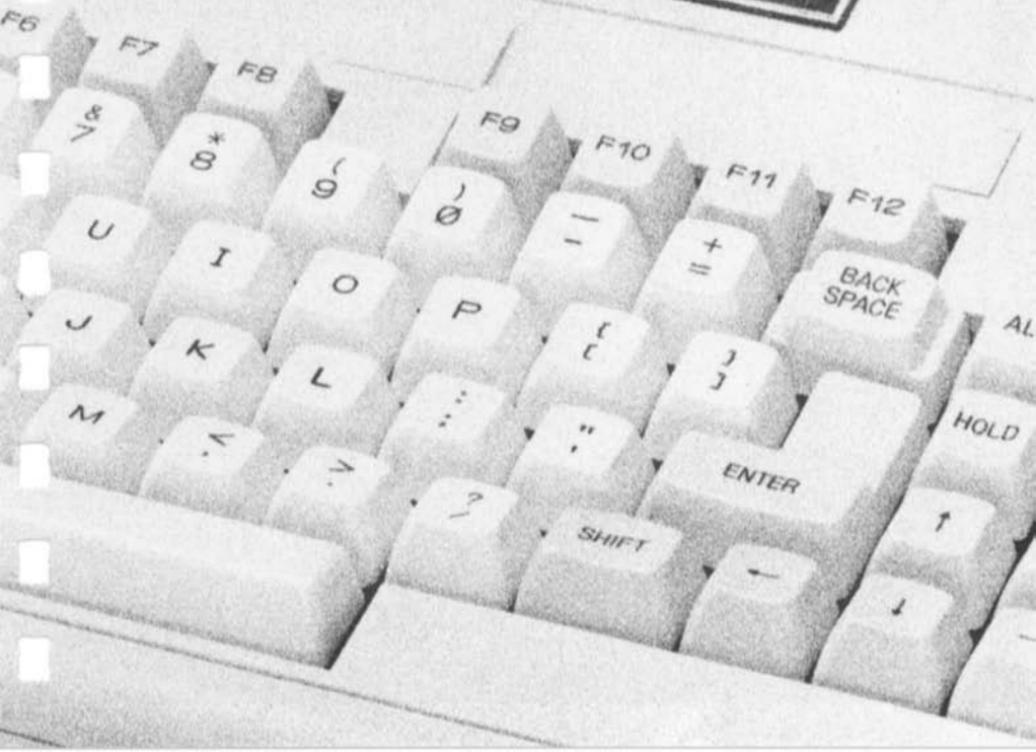
To exit Telecom and Return to the Main Menu, press **(F12)** at the original Telecom screen.

Phone

PERSONAL COMPUTER

TANDY

PERSONAL COMPUTER



PHONE

- To select Phone from the subfunctions menu, press **(ALT) (F5)**. The screen soon shows a list of phone numbers previously entered for Edwin's customers and suppliers.

FIND:		*	----	----	----	----	----	----	----
ABC	ABC Exterminators.....	817-990-1212	*	----	----	----	----	----	----
AL	Arnold's Liquors.....	817-764-1892	*	----	----	----	----	----	----
CB.	Beauchamp, Cindy.....	817-883-1267	*	----	----	----	----	----	----
FD.	Davis, Frederick.....	817-256-9011	*	----	----	----	----	----	----
JH.	Helmer, John.....	817-653-8754	*	----	----	----	----	----	----
BJ.	Jones, Bill.....	817-555-8060	*	----	----	----	----	----	----
LFB	LaFrance Bakery.....	817-732-5766	*	----	----	----	----	----	----
RM.	Miller, Robert.....	214-872-4432	*	----	----	----	----	----	----
---	Mom.....	817-292-3188	*	----	----	----	----	----	----
LM.	Moore, Lisa (CPA).....	817-832-3358	*	----	----	----	----	----	----
PLS	Petta Linen Service.....	817-482-7371	*	----	----	----	----	----	----
RF.	Riverdale Florist.....	817-537-0906	*	----	----	----	----	----	----
LR.	Roach, Lewis.....	214-872-6680	*	----	----	----	----	----	----
CS.	Sims, Chris.....	817-449-8442	*	----	----	----	----	----	----
S&P	Smith & Patterson.....	214-335-4285	*	----	----	----	----	----	----
EW.	Williams, Mrs- Eliot.....	817-737-7728	*	----	----	----	----	----	----
LW.	Wordsworth, Laura.....	817-921-8831	*	----	----	----	----	----	----
YFM	Young's Fish Market.....	817-563-2199	*	----	----	----	----	----	----
---	-----	-----	*	----	----	----	----	----	----
PREFIX 1: 9P----- PREFIX 2: 5551290P_ PREFIX 3: 8559012___ ACODE: 817									
[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Find	Call	Prefix1	Prefix2	Prefix3	Sort	Print		Delete	Add

You can enter a maximum of 78 phone entries, each consisting of 3 parts you can use for identification and information purposes. The first field of an entry can contain 3 characters and is used for a person's or company's initials. Then, if you use the Find function to look for a particular phone number, you can simply enter the initials rather than a person's entire name as the Find criteria.

The second field, which can contain a maximum of 21 characters, is for the name. Enter the entry's phone number in the last field. The first 3 digits are for the area code, and the next 3 digits are for the local exchange, followed by the rest of the phone number.

- Suppose that you want to look up Lisa Moore's phone number. The line above the first entry is reserved for entering Find criteria. Type **LM (ENTER)**, and press **(F1)** for Find.

The selection marker moves to the first match the program finds in the phone list, the **lm** in John Helmer's name. (Lower- and uppercase characters are regarded as the same.)

3. Press **(F1)** to find the next occurrence of LM. The selection marker is now on Lisa Moore's phone entry.
4. To change Lisa's number, press **(SHIFT) (-)**, **(SHIFT) (-)**, and **(-)** until the cursor is over the first digit of the actual telephone number.
5. To change any previously entered information, all you need do is type over the existing characters. For Lisa's new number, type **7338522 (ENTER)**.

Now you need to add 2 new entries.

1. Move the marker to the line containing Robert Miller's entry.
2. Press **(F10)** for Add. Robert Miller's entry and all entries below his move down one line so that you can insert an entry at the point of the cursor's current position.
3. Type **EM (ENTER)** for the entry's initials.
4. For the name field, type **McKinney, Ellen (ENTER)**.
5. Type **8173338166 (ENTER)** for the number.
6. Position the marker on the line below the Young's Fish Market entry.
7. Press **(F10)** to add an entry.
8. Type **DP (ENTER)** for the initials.
9. Type **Dilardo's Produce (ENTER)** for the name.
10. Type **8172225412 (ENTER)** for the phone number.

You can list your entries in any sort of order you want. For example, if most of your entries are all phone numbers for one company, you could list the entries according to department. Or if you are using Phone to dial mostly long-distance numbers, you could order the entries according to area code.

If you want to keep your phone list in alphabetical order, use the Sort function to let the program do it for you. For example:

11. To put the last name you entered, Dilardo's Produce, in its proper position in the list, press **(F6)** for Sort. The program automatically inserts the entry above Helmer and pushes the entries after Dilardo's Produce down one line, so that now the last entry, Young's Fish Market, is the first entry of the second column.

To delete an entry, move the marker to the desired entry, and select the Delete function.

1. To delete the entry for Chris Sims, position the marker on the line containing Chris Sims' entry.
2. Press **(F9)** for Delete. That entry is deleted, and all entries after the CS entry move up one line. Note also that the Young's Fish Market entry has moved back to the first column of phone numbers.

To print all phone number entries, first be sure that your printer is on-line and that the paper is advanced so that printing will begin about an inch or so from the top of the paper.

1. Press **(F12)** to exit Phone.
2. Press **(F11)** to view the subfunctions menu. Then **(ALT) (F6)** to change the printer settings.
3. Type **1 (ENTER)** for Left Margin, and **79 (ENTER)** for Printed Line Width.
4. Press **(F12)**, and then **(ALT) (F5)** to return to the Phone screen.
5. Press **(F7)** to print. The entries are printed in the same format in which you enter them.

At the bottom of the phone list and just above the label lines, you see a line containing 3 prefix numbers and an area code number:

```
PREFIX1: 9P  PREFIX2: 5551290P  PREFIX3: 8559012  ACODE: 817
```

ACODE is the area code from which you are calling. If the area code of a number you are calling is the same as your area code, the program ignores the local area code and simply dials the telephone number. If the area code of the number you are calling is different from the displayed ACODE, the program dials the area code plus the phone number.

You can enter as many as 3 prefix numbers to have the program automatically dial a prefix number before it dials the actual phone number. For example, you can use PREFIX1 to dial a 9 for an outside call if you are calling from a business or a 1 to precede a long-distance phone number.

In this example, PREFIX1 is 9P, which tells the computer to dial a 9 and then pause (P) for a dial tone before dialing the rest of the number. PREFIX2, 5551290P, is the local access number to a long-distance carrier. PREFIX3, 8559012, is Edwin's private code number assigned by the long-distance carrier.

You can use one or more prefixes by pressing the appropriate functions keys. For example, suppose you want to call Cindy Beauchamp and then Lewis Roach.

1. Move the marker to the line containing the entry for CB.
2. To get an outside line, press **(F3)**. (Note that PREFIX1 is now highlighted in the label line to let you know that it is turned on and will be dialed before the number.)
3. If you were to actually make the call now, you would press **(F2)** for Call. Next, the computer would dial 9, pause for a tone, and then dial 883-1267. Since Cindy's area code, 817, is the same as the displayed area code, the computer knows that it is unnecessary to dial the area code.
4. To call Lewis Roach, move the marker to the appropriate line.
5. Since this is a long-distance number, you'll want to turn on PREFIX2 and PREFIX3 in addition to PREFIX1 so that you can dial the number using the long-distance carrier. Press **(F4)**, then press **(F5)** to activate PREFIX2 and PREFIX3.
6. To actually dial the phone number, you would press **(F2)** for Call. The computer would dial 9, pause for a tone, dial 5551290 (the local access number), pause for another tone, then dial the code number, 8559012, followed by Lewis Roach's number, 214-872-6680.
7.
 - a. If you are using tone dialing, pick up the phone a few seconds after you press **(F2)**.
 - b. If you are using rotary dialing, wait until the modem dials the number (the modem makes a clicking sound as it dials).

If you have an auto dialing modem, try experimenting with the Phone subfunction. (You must first define the voice dialing protocol that your modem uses. If you followed the instructions in the section, "Telecom," you have already done this.) Enter the phone numbers of some friends using the Add function, then use Call to try to reach them.

You may also want to try changing the prefixes and area code to fit your needs, then try calling some long-distance numbers. Position the marker on the prefix/area code line, then type over the existing numbers and characters.

Note: You can use Phone at anytime. Press **(ALT) (F5)** whenever you want to use Phone. The current screen is replaced by the phone list screen. Move the marker to the number you wish to call, then press **(F2)** for Call. When you are finished using Phone, press **(F12)** to return to the application you were previously using. The screen is exactly the way you left it before using Phone.

Mail



MAIL

In this section describing the Mail application, assume that you are the DeskMate user named John. You are going to read messages previously sent to you by remote-site users and then create and leave messages for remote-site users to pick up.

To keep incoming and outgoing messages separate, you can set up various message files, just as you would have separate mailboxes for individual persons. In this instance, John uses the default Mail file, MESSAGES, the messages people send him. He has created specific files for all other persons accessing DeskMate as remote-site users. In the next section on the Host function, Laura, as a remote-site user, will also read the messages in her file and send messages back to John at the Host DeskMate computer.

To select Mail and the default file, MESSAGES, from the Main Menu, position the marker over Mail, and press **(ENTER)**. The screen shows a summary list of messages people sent to John from remote sites.

MAIL [MESSAGES]		02/25/85 10:30am	
From	Date	Description	
Laura	02/23/85 10:30am	FANTASTIC NEWS!	
Dave	02/24/85 08:15am	Sales meeting, personnel problem	
Richard	02/24/85 01:00pm	Tax problem	
Laura	02/24/85 02:45pm	Trip to Tulsa	

[F1]	[F2]	[F3]	[F4]	[F5]	[F6]	[F7]	[F8]	[F9]	[F10]
Find	Create	Display	Print					Delete	

A message consists of the **D a t e** and time the message was created, an identifier telling **F r o m** whom the message is sent, an identifier telling **T o** whom the message is intended, a brief **D e s c r i p t i o n** of the main subject of the message, and the actual message itself.

Because the messages listed were **T o** John and placed in the default MESSAGES Mail file, a **T o** name is not needed. However, when you create messages, you must enter **T o** whom the message is being sent, unless you want it to be placed in the default MESSAGES file.

Reading Messages

1. Press **(F1)** to Find a particular message. On the screen, you see the Find criteria you can use and a line on which you enter the criteria.

F r o m	D a t e	D e s c r i p t i o n
----------------	----------------	------------------------------

You can search for messages by specifying **F r o m** whom the message is sent, the **D a t e** the message was sent, or any particular string contained in the **D e s c r i p t i o n** of the message.

2. For example, to find all messages from Laura, type **Laura** **(ENTER)** as your search criterion.
3. Press **(ENTER)** twice to skip the **D a t e** and **D e s c r i p t i o n** criteria. The screen clears briefly, then the summary listings of the 2 messages from Laura are displayed.

Note: In this case, it wasn't necessary to use Find, since all messages in the MESSAGES file are displayed on 1 screen. However, if there are several messages and you are looking for 1 or more particular messages, Find is a useful function.

4. To display the first message from Laura (highlighted by the selection marker), press **(F3)**. You are transferred from Mail to the Text application, and the message is displayed on the screen.

```
Got a terrific raise and a great promotion. Can't wait to tell you
about it when you get back home.
```

```
I love you - Laura
```

5. To exit the Text screen, press **(SHIFT) (F12)** since you don't want to change the message.
6. You are asked whether you want to cancel the edit. Press **(Y)** for yes or **(N)** for no.
7. To return to the original screen with all messages in the MESSAGES file displayed, press **(F12)**.

You can see the contents of a message without exiting to Text and displaying the message by using the Print function.

1. Be sure that your printer is on-line.
2. Press **(ALT) (F6)** to display the current printer settings.
3. Type **5 (ENTER)** for Left Margin, then **70 (ENTER)** for **Printed Line Width**.
4. Press **(F12)** to return to Mail.
5. Press **(I)** to move the marker to the message from Dave, then press **(F4)**. The following message is printed while you remain in the Mail application.

The meeting with the sales force has been rescheduled for March 6, 8:30 a.m. in the conference room. Ann can't come but will be sending her assistant. She is still having problems with that one distributor in Macogdoches and needs to talk with someone in Personnel. When you get back, call her as soon as possible.

I'll be taking the Houston clients out tomorrow night and will let you know what transpires. They want to amend some contract clauses and discuss some changes in due dates. 2/28 @ 9:00 a.m. we'll be meeting with the legal dept. and if possible, I think you should go, too.

See you when you get back.

6. Since you have a printout of Dave's message, go ahead and delete it. To delete the message currently highlighted, press **(F9)**. The message is erased from the screen and deleted from the diskette.
7. Print the other 2 messages, from Richard and Laura, 1 at a time. Move the marker to the message from Richard, make sure the printer is ready; then press **(F4)**.

- After the printer has stopped, press **[I]** to move the cursor to the other message from Laura, and press **[F4]** again.

The following messages are printed.

I'm afraid you're going to have a problem with trying to claim that one deduction. I'm going over the new tax laws now with a fine tooth comb but since there's no precedent, it'll be hard to find evidence in similar cases. If you can't claim it as a deduction, we may be able to write it off as a loss.

Call me when you return.

Have to make a quick trip to Tulsa today. Will be back tomorrow around 4 p.m. See you then.

Love and kisses,
Laura

Creating Messages

Now that you've reviewed all your messages, you need to create 2 messages—one for Dave and one for Laura.

- Press **[F2]** to create and send a message to a file. The screen shows:



```
Create MAIL
Date : 02/25/85 10:30am
From :
Description :
To :
```

Enter information or [BREAK] to cancel

The **D a t e** and time displayed are automatically used for the date and time the message is created. (The time displayed on your screen will probably be different.)

2. Type **John** (ENTER) at the **F r o m** prompt. For **D e s c r i p t i o n**, type **URGENT—going to Nacogdoches** (ENTER).
3. At the **T o** prompt, type **Dave** (ENTER). Now, a Mail file called Dave is being created on the diskette. (If you just press (ENTER) at **T o**, the message is automatically placed in the default MESSAGES file.)

Note: If you want to change the **D a t e** and time, press (ALT) (F7) and change the **D a t e** and/or time, using the subfunction, before pressing (F2) to create a message.

After you enter **T o** whom the message should be sent, you are taken automatically to the Text screen to enter the contents of the message.

4. Type the following paragraph, pressing (ENTER) at the end of the message. If you make any mistakes in typing, use the available editing functions in Text (See the Quick Reference Guide, or press (ALT) (F1) for Help to look up information.)

I've already talked to Ann and have decided that this situation has gone on long enough. I'm going directly to Nacogdoches and should be back in the office the morning of the 28th. Meet with Ann and get the necessary personnel papers ready. If you need to contact me, I'll be staying at the Holiday Inn.

5. After typing the contents of the message, press (F12) to exit the Text screen.

Note that this message is not displayed because it is in a file called DAVE—not in the current file, MESSAGES.

6. Press (F2) to create a message to leave for Laura.
7. Type **John** (ENTER) at the **F r o m** prompt.
8. For **D e s c r i p t i o n**, type **Trip to Nacogdoches** (ENTER).
9. At **T o**, type **Laura** (ENTER).

10. Type the following paragraph, pressing **(ENTER)** at the end of the message.

Received your messages - congratulations on raise, also what was going on in Tulsa?

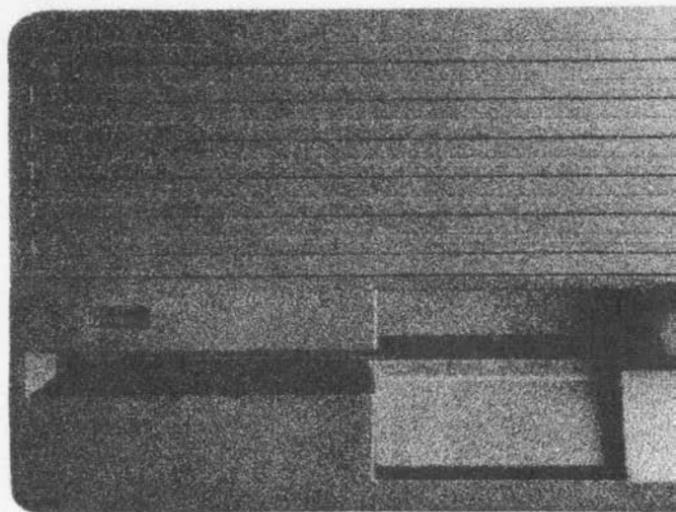
I've got a sticky problem in Macogdoches and am going directly there. Can you pick me up at the airport 2/27 @ 10:30 pm? Love, John.

11. After you have typed the message and everything is correct, press **(F12)** to exit the Text screen.
12. Press **(F12)** to return to the Main Menu. Note that under the Mail column, two new message files which you just created, DAVE and LAURA, are displayed.

Read the next section, "Host," to see how a remote user can pick up the mail you just created.

Note: You can reenter the Text screen by using the Display function to edit or simply review a message. Press **(F12)** if you changed or edited the message, then press **(Y)** to save the new message. If you change a message, both the old and the new message exist (only the creation date/time information differ). To keep your files up-to-date, delete the duplicate, unnecessary message, old or new.

Host



HOST

The Host function lets you access the DeskMate *host* computer from a remote terminal or computer. At the remote terminal, you can read messages from or place messages in a Mail file, as well as send or receive a specific file to and from the DeskMate system.

At the host computer, you can turn on the Host function to allow a remote-site user access to DeskMate, turn on the security option to prohibit local use of DeskMate, or cancel the remote session by turning off Host.

Before using Host, be sure that the communications settings of both the Host computer and remote terminal/computer match, just as you did in Telecom. If necessary, use the Telecom application now to set the communications setting. For additional information, see the section, "Telecom," and "Appendix B" in the Reference Manual to determine the settings necessary for communications.

The user at the Host computer must first define the type of modem and its protocol (particularly for answer mode). If you followed the instructions in the section, "Telecom," you have already done this.

If you are using a Modem II, be sure that the POWER switch is ON and that the TEST switch is OFF. Set the DTR switch at the back of the modem to the OFF position and the MODE switches to AUTO and ANSWER.

If you have the proper equipment set up—a Host computer with an auto answer modem, remote terminal or computer with a telephone hook-up via a modem, cables, and so on—and another person at the remote site to access the Host computer, try the following experiment. There are 2 sets of instructions: one for the DeskMate user (Host) and one for the remote site user (Remote).

Note: Taking it from the point at which you stopped in Mail, assume the remote site user is Laura. One of the messages Remote will pick up is the message you created in Mail and put in her mailbox (the LAURA file).

Host:

1. At the Main Menu, press **(F5)** to turn on the auto-answer Host function. The Host screen is displayed, and now the remote terminal user can access DeskMate.

Note to Host: During the entire time the Host function is active, you will see what the Remote user types on the screen (the Remote user's commands) but will not see the information the Remote user sees on the screen in response to his command. For example, you'll see the name of the file the remote user is sending or receiving, but not the contents of the file. For the entire session, the Remote user plays the active role, and you just see the requests Remote enters. At the end of session, the Remote user will disconnect from the Host after sending you, the Host, a message.

Remote:

5. Select Option 1 to see the Directory Menu.

The screen shows:

```
                DIRECTORY MENU

1) MAIL          5) WORKSHEET
2) CALENDAR      6) AUTOLOG
3) TEXT          7) ALL
4) FILER
```

```
                SELECT MENU OPTION >
```

Select Option 3 to see all Text files currently in the DeskMate directory.

The screen shows:

```
                REMOTE DIRECTORY:
CUSTADDR.DOC   LETTER. DOC   SUPLADDR.DOC   WILLIAMS.DOC

                USE CONTROL Q TO CONTINUE
```

6. Press any key to indicate that you are finished looking over the information. Next, you are going to receive a file from the Host DeskMate.
7. To retrieve any type of file from DeskMate, use the second option from the Remote DeskMate Menu. To read the text file that contains the addresses of Edwin Raymond's customers, select Option 2, and type **CUSTADDR.DOC** (**ENTER**) for the Host file you want to read.

- After the Host computer finds the file and is ready to transmit it, you see the following message:

PRESS CONTROL Q TO PROCEED,
CONTROL S TO PAUSE,
CONTROL C TO ESCAPE

- Press your control key (**CTRL** on all Tandy computers and terminals) and **Q** to start displaying the addresses in the CUSTADDR.DOC file.

The following addresses will be transmitted.

Miss Cindy Beauchamp
2209 Riverdale Road
Fort Worth, Texas 76107

Mr. Frederick Davis
6601 Oak Boulevard
Arlington, Texas 77109

Mr. John Helmer
900 Valley View
Grapevine, Texas 78105

Ms. Ellen McKinney
3398 Ridgeway Apartment 500
Fort Worth, Texas 76103

Mr. and Mrs. Robert Miller
6703 Austin Street
Dallas, Texas 74123

Mr. Lewis Roach
7400 Seventh Street
Grand Prairie, Texas 77156

Mrs. Eliot Williams
1908 Florida Avenue
Denton, Texas 70912

Ms. Laura Wordsworth
8808 Pine Valley
Fort Worth, Texas 79874

The file displays 1 line at a time. You can press **CTRL S** to temporarily stop the transmission. Press **CTRL Q** to restart the data transmission.

Read File From Host is generally used with a printer or RAM buffer option at the remote terminal. Toggle the printer or open the RAM buffer before receiving the file. Consult your terminal's operating instructions for specific information.

Note: If your remote site is another DeskMate, you can use Telecom in Terminal mode. (See "Telecom.") Telecom or another terminal program, such as VIDEOTEX, can provide you with options such as file saving and printing.

10. After the entire file has been transmitted and displayed, press **(CTRL) (C)** to display the Remote Menu.
11. Select Option 3 to send a file to the Host computer. For the filename, type **TEST.DOC (ENTER)**, then type the following sentences to be contained in the Text file, TEST.

This test is for checking the Host Function, Send File To Host. After the remote session is through and the remote-site user has disconnected, the Host computer will read this file using the Text application.

12. After you type the sentences, press **(CTRL) (C)** to mark the end of the file and send it to DeskMate. The file is sent directly to the DeskMate directory and diskette (not to the Host computer's screen) so that when the Host user gets a chance, the file can be accessed from the Main Menu.
13. To read your messages, select Option 4 at the Remote Menu; then type **LAURA (ENTER)**. A list of messages in the LAURA Mail file is displayed.
14. Select **(A)**. The first message is displayed.

Got the club room reserved on 3/5 @ 7 pm for our 30th anniversary.
Remember - it's still planned as a surprise for your father.
Love - Mom

15. At this point, you can select **A-S** and read the corresponding messages. If there are more messages than appear on the list, press **(ENTER)** to see the list on the next screen.
16. Press **(CTRL) (C)** to return to the Remote Menu.
17. To place a message in the default MESSAGES file used to collect all messages for John, select Option 5 to Send Mail, and type **MESSAGES**.
18. Type **Laura (ENTER)** at the **From** prompt.
19. Type **Response to 2/25 message (ENTER)** as the Subject. (The date and time of the Host computer are automatically assigned to the message.)

20. Type the short message below, and when you are finished typing, press **(CTRL) (C)** to end the message and send it to DeskMate.

Sure thing - I can pick you up. How'd you like a late night celebration at Cafe du Marseille?

Remote:

To log off, select Option 6. You may want to read the CUSTADDR.DOC file you received using the Text application.

Host:

To exit the Host screen, press **(F12)** to return to the Main Menu. To see if the TEST.DOC file was transmitted and received by DeskMate, try to open that file using the Text application. Also, check the MESSAGES Mail file to see if the message was received from the remote-site user.

Note: If you use a Modem II at the Host computer to automatically answer incoming phone calls from remote-site users, you must manually turn off the power between phone calls. The Modem II stays turned on and does not hang up the phone because it does not know when the remote-site user has finished the call and disconnected.

Security

You may want to use the Security option of Host, which is just like Host without security except that **no** remote activity is displayed on the DeskMate screen and that you can prevent local use of DeskMate.

To activate the Security option, press **(Y)** at the prompt, **Security??? (Y/N)**, right after you select Host from the Main Menu.

Without activating the Security option, the DeskMate user can always press **(BREAK)** to disconnect the remote site user and regain control of the DeskMate system. However, with Security turned on, you can completely lock out local operation. If a system password has been entered for DeskMate and people at the DeskMate computer try to press **(BREAK)** or **(F12)**, they will have to enter the password to disconnect the remote site user.

Ending the Sample Session

COMPUTER



ENDING THE SAMPLE SESSION

You are now finished with the sample session. You can continue using the sample data files to experiment and try new things not covered in the Sample Session. For example, you can try using Host and Telecom together to transmit information between two computers, saving data received from an information service using Telecom, or copying data from an application like Calendar to a Text file. Use the Reference Manual to look up information on the application and function you want to use.

When you are ready to start using DeskMate for your own purposes, use the Delete function on the Main Menu to erase the data files used in the sample session—LETTER, WILLIAMS, CUSTADDR, SUPLADDR, SUPPLIER, CLIENTS, BUDGET, TABLE, EXAMPLE, LAURA, DAVE, and AGENDA. Also, delete any files received or sent using Telecom or Host.

Next, you need to erase the Phone, Alarm, and Mail data.

1. Press **(ALT) (F5)** for Phone.
2. Delete each phone entry, one by one.
3. Press **(F12)** to exit Phone.
4. Press **(F4)** at the Main Menu to display the events in the Alarm file.
5. Highlight all the events using the Select function, and then Delete them.
6. Return to the Main Menu and select the MESSAGES file and Mail application.
7. Delete each message, one by one.

The final step to making DeskMate ready for your data is to delete or change the password.

1. Press **(F6)** at the Main Menu for the Passwd function.
2. If you do not want to use a password to access DeskMate as a direct DeskMate or remote-site user, press **(ENTER)** for **New Password**.

To assign a new password to access your DeskMate, simply type the new password, and press **(ENTER)**.

Now, all sample data is erased from DeskMate. After you become thoroughly familiar with an application, and no longer require the assistance of a Help file, you can delete that Help file. We strongly recommend that you only delete Help files from your backups. Leave the master program diskette in its original form.

To delete a Help file, press **(F9)** at the Main Menu and type one of the following:

TWTEXT.HLP	for Text
TWORK.HLP	for Worksheet
TWFILER.HLP	for Filer
TWTELCOM.HLP	for Telecom
TWCALEND.HLP	for Calendar
TWMAIL.HLP	for Mail
TWALARM.HLP	for Alarm
TWHOST.HLP	for Host
TWMENU.HLP	for Main Menu

Again, we recommend that you make backups at the end of each day. By following this procedure, you'll be able to retrieve most of your data in case of a mishap.

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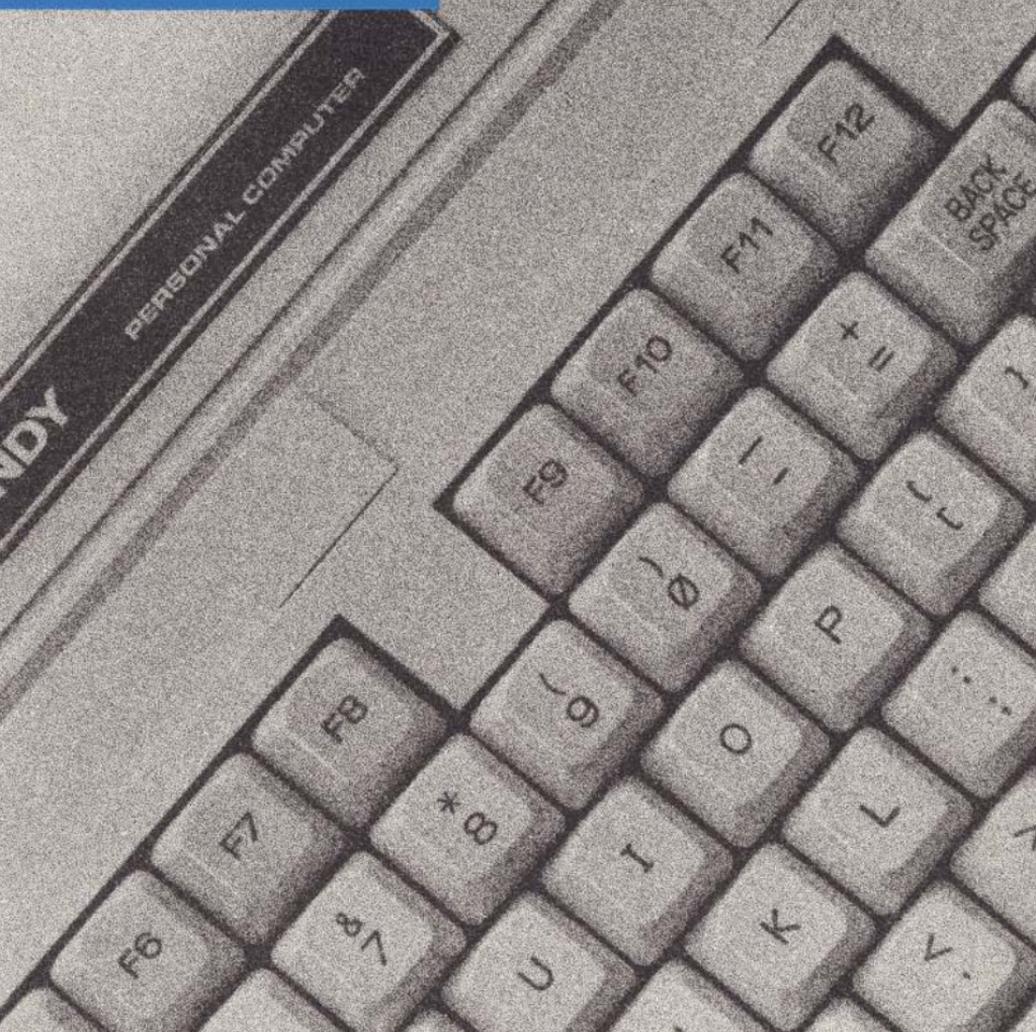
Notes

Notes



A Guide to the Tandy 1000

- Introduction to the Tandy 1000/
A Tutorial to DeskMate™
- DeskMate, A Reference Manual
- BASIC, A Reference Guide



DeskMate™

A Reference
Manual

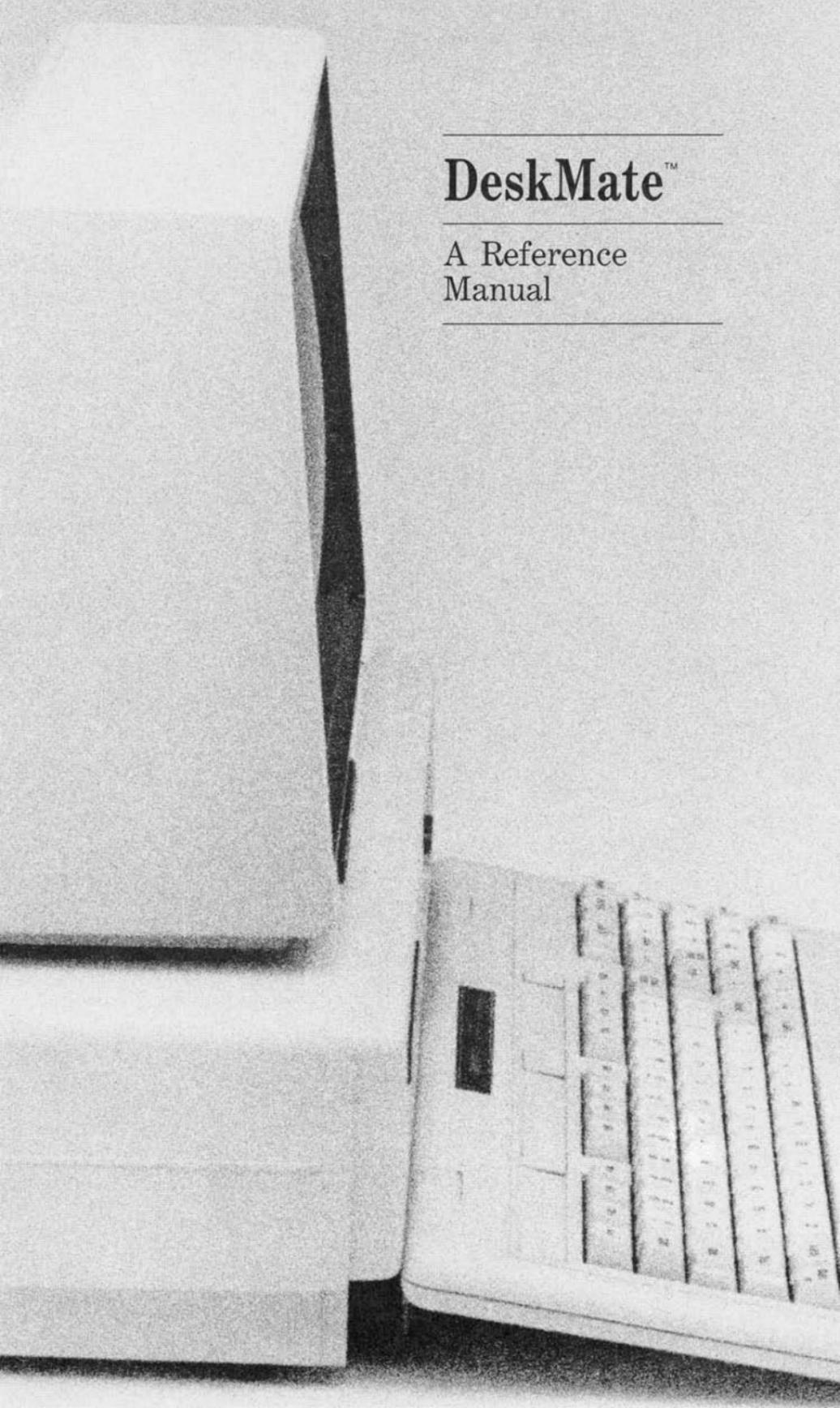


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DeskMate™



DeskMate

DeskMate™ is a versatile, easy-to-use set of applications and functions combined to save you time, energy, and space. Similar functions and operations are used throughout DeskMate, making it easy to learn and use.

DeskMate can replace many of your manual production tools including typewriter, calculator, rolodex, calendar, notepad, and so forth. DeskMate is faster to use and gives you quick, easy access for timely updates and corrections. Many of the applications provide “at-a-glance” information, a real asset for quick decision making and question answering. All DeskMate information can be printed as well as displayed on the screen.

Features

DeskMate features 7 auxiliary subfunctions that you can use anytime throughout DeskMate, 10 Main Menu functions, and 6 major applications along with their individual functions. Separate chapters of this reference manual explain in-depth the subfunctions, Main Menu functions, and each of the applications.

Applications

- **Text** is a text editor used to create, review, edit, and print documents.
- **Worksheet** is a spreadsheet application used to compute numbers in columns and rows. Addition, subtraction, multiplication, division, and exponentiation, as well as other set, statistical, and trigonometric operations are available.
- **Filer** is a card-file-type filing system. Any number of *forms* of information can be stored. Items are filed and searched for by any of the information contained therein.
- **Telecom** acts as a telecommunications terminal. DeskMate goes into an interactive terminal mode so that information can be transmitted from another system.
- **Calendar** is an event scheduling system. Recorded events can be reviewed at any time. A list of the events for the day are displayed at the Main Menu.

- **Mail** is a messaging system. Messages are created and stored in files according to whom the messages were written. General information messages can go into a common file, MESSAGES.

Main Menu Functions

- **Date** is used to change the system date and/or time.
- **Name** is used to change the name of a data file.
- **Free** displays the amount of free space (in bytes) on the current diskette.
- **Alarm** reminds you of important scheduled events with an audible signal.
- **Host** is a telecommunications mode for using DeskMate from a remote site. Local operation is locked out while a remote terminal accesses the system.
- **Password** is used to assign a password for security reasons.
- **Select** is used to define data files for deleting.
- **Copy** is used to duplicate data files.
- **Delete** is used to delete selected data files.
- **Swap** is used to activate a drive other than Drive A in a 2-drive system.

Subfunctions

- **Help** displays helpful reference information for the Main Menu, the current application, or current mode.
- **Calculator** is a quick-access function for simple addition, subtraction, multiplication, division, and percentage calculations.
- **Show Alarm** displays Alarm event information.
- **Alarm On/Off** is used to toggle the alarm on or off.
- **Phone** is used to store, review, and call (with an auto-dial modem) phone numbers.
- **Printer** is used to define printer parameters.
- **Date** is used to change the system date and time without having to access the Main Menu.

Equipment Requirements

The equipment requirements for DeskMate include the Tandy® 1000 Computer with either a monochrome monitor (Cat. No. 26-3211) or a Color Monitor (Cat. No. 26-3212). Either the RS-232 Board with a modem, or the 300 Baud Modem Board is required for communicating with another computer using Telecom or Host. To use the automatic log-on feature of Telecom or Host, or to use the dialing feature of Phone, the modem must be programmable (auto-dial). Check the operating instructions of your modem for details.

A printer is helpful for producing permanent records of DeskMate tasks accomplished and information stored.

DeskMate Conventions

Operations and key usage are very similar throughout the system. A quick review of the following conventions is helpful in learning how to use the system.

Arrow Keys

The arrow keys, **↑**, **↓**, **←**, and **→** (alone, with **SHIFT**), and with **CTRL**), are used throughout DeskMate to move the marker and display specific application information. Arrow key usage varies slightly in each application. Refer to the arrow key table provided in the corresponding application chapters of this manual for specific usage. General arrow key usage is described in the following table.

Arrow Key Usage

↑	moves the marker to the previous line
↓	moves the marker to the next line
←	moves the marker to the left one position
→	moves the marker to the right one position
SHIFT ↑	moves the marker to the top line of the screen
SHIFT ↓	moves the marker to the bottom line of the screen
SHIFT ←	moves the marker to the left margin of the screen
SHIFT →	moves the marker to the right margin of the screen
CTRL ↑	displays the first item in the file
CTRL ↓	displays the last item in the file
CTRL ←	displays the previous item in the file
CTRL →	displays the next item in the file

Command Keys

Use command keys to perform a system function. Their uses are:

BACKSPACE—moves the cursor back over the previous character, erasing it.

HOLD—toggles a pause in computer operation on and off.

BREAK—cancels the current request, prompt, or command.

F11—toggles the Subfunction Label line on and off.

F12—saves all data entered and exits to the previous operation or menu.

SHIFT F12—cancels the current changes and exits to the previous operation or menu.

SHIFT PRINT—prints everything currently on the screen.

Function Keys

Functions are specific to each application. Function keys (**F1**, **F2**, and so forth) and names are displayed on the last 2 lines of the application screen. To select a function, press the appropriate function key.

Control Keys

The control keys used in DeskMate are **ALT**, **CTRL**, and **SHIFT**. These keys work in combination with other keys to produce a *key sequence*. Control keys work in much the same way as the **SHIFT** keys of a typewriter. To use a control key, hold the control key down while pressing the appropriate combination key.

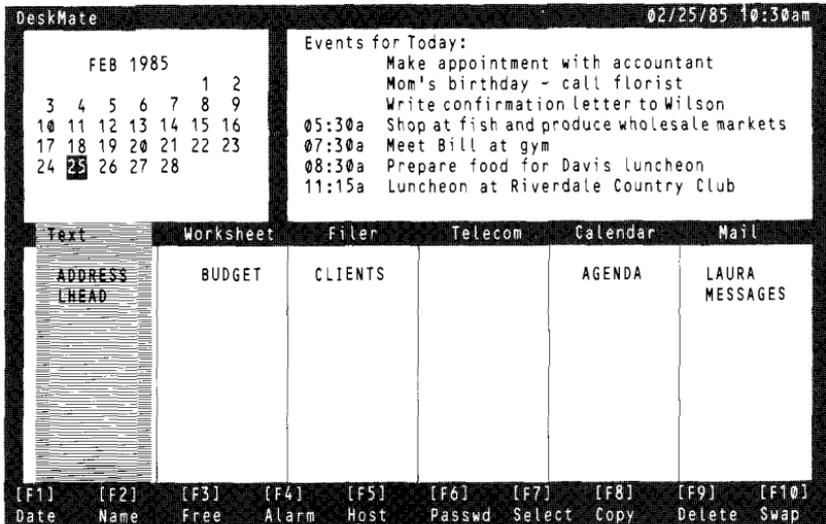
Filenames

DeskMate does not distinguish any difference in upper- and lower-case filenames. The names *FILE* and *file* are recognized as equal.

A valid filename begins with a letter, contains no spaces, and is no more than 8 characters in length. Do not add a file extension (.DOC, and so forth) when creating a new file. DeskMate automatically adds the proper file extension when it creates a file.

Entering DeskMate

Insert the MS-DOS/BASIC diskette into Drive A and press RESET. Type the date and time at the prompts, and press **(ENTER)**. At **A>**, insert a copy of the DeskMate diskette, and type **DESK (ENTER)**. The Main Menu is displayed:



At the top left of the Main Menu is a calendar for the current month. Today's date (the current system date) is highlighted. The next 7 Events for Today, events for which the Remind @ time has not yet passed, are displayed at the top right. The applications display on the application name line. Below each application are its corresponding data files. The last 2 lines, the function label lines, display the Main Menu function names and numbers. (Label lines appear in each application, showing the functions specific to that application.)

Creating, Opening, and Exiting an Application File

To create a new file for an application, use the left and right arrow keys to place the marker over the application name on the Main Menu, and press **(ENTER)**.

For all files except Telecom and Mail, the following prompt appears at the bottom of the screen:

Enter filename:

Type a name for the file, and press **(ENTER)**. (See “DeskMate Conventions — Filenames.”)

The Telecom and Mail applications can be opened directly from the application name line. Mail uses data files, including a default file for general messages. It is the default file (MESSAGES) that displays when you select Mail from the applications name line.

To open an existing application data file, position the marker over the filename and press **(ENTER)**. (Data files appear directly under the application to which they correspond.)

The first screen in the chosen data file appears. Review, edit, or perform other available functions on the information in the data file.

Note: If there are more than 10 data files for an application, **(SHIFT)** **(1)** scrolls to the next screen of data file names.

To exit an application file, press **(F12)**. The screen displays the Main Menu.

Exiting DeskMate

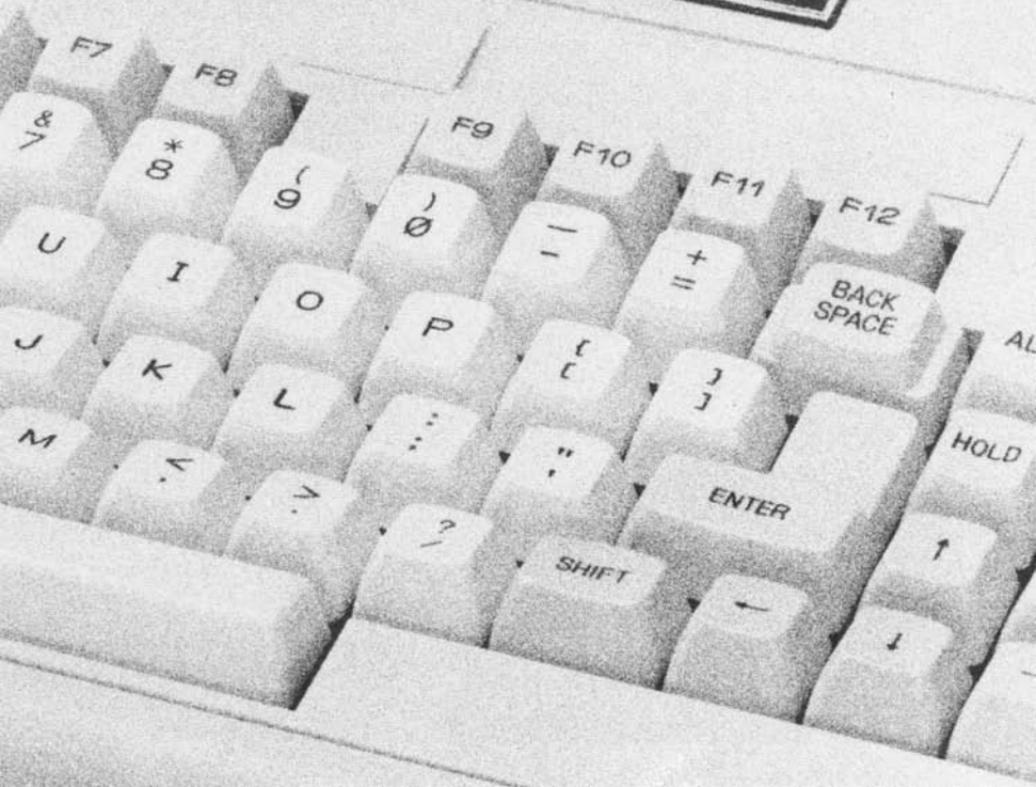
Press **(F12)** at the Main Menu to exit DeskMate.

DeskMate™ Subfunctions

PERSONAL COMPUTER

TANDY

PERSONAL COMPUTER



DeskMate SUBFUNCTIONS

The DeskMate subfunctions are handy, easy-to-use functions that are available to you throughout all applications and at the Main Menu. Each subfunction is described in detail in this chapter.

To view the subfunction label lines, press **(F11)**. The subfunctions label lines replace the application or Main Menu label lines:

[ALT:F1]	[ALT:F2]	[ALT:F3]	[ALT:F4]	[ALT:F5]	[ALT:F6]	[ALT:F7]
Help	Calc	Show Alarm	Alarm On/Off	Phone	Printer	Date

To restore the application or Main Menu label line, press **(F11)** again.

It is not necessary to display the subfunction label lines in order to access a subfunction. To select a subfunction, hold down the **(ALT)** key, and press the appropriate function key.

Press **(F12)** to exit a subfunction and return to the current application at the exact point at which you left it.

Help

The Help subfunction displays helpful reference information for the Main Menu, or the current application or function (Find, Format, and Formula).

Press **(ALT) (F1)** to display the first Help screen. If there is another Help screen, the screen shows:

Press [ENTER] for next page of Help or
[F12] to exit Help

Press **(ENTER)** to display each successive Help screen. The following message displays on the last Help screen:

Press [F12] to exit Help

Press **(F12)** to exit the Help subfunction and continue with the current application or function.

After you are thoroughly familiar with an application, and no longer require the assistance of a Help file, you can delete that Help file. We strongly recommend that you only delete Help files from your backups. Leave the master program diskette in its original form.

To delete a Help file, press (F9) at the Main Menu, and type one of the following:

TWTEXT.HLP	for Text
TWORK.HLP	for Worksheet
TWFILER.HLP	for Filer
TWTELCOM.HLP	for Telecom
TWCALEND.HLP	for Calendar
TWMAIL.HLP	for Mail
TWALARM.HLP	for Alarm
TWHOST.HLP	for Host
TWMENU.HLP	for Main Menu

Calculator

The Calculator subfunction lets you use your computer as a calculator. Calculator uses a 10-digit display (no commas) and a floating decimal point format. 9,999,999,999 is the largest number that you can enter or accumulate, and 0.0000000001 is the smallest. If the accumulator overflows, it fills with asterisks.

Press (ALT) (F2) to select Calculator. The screen displays the following:

```
[F1]  [F2]  [F3]  [F4]  [F5]  [F6]  [F7]  [F8]  0.000000000
Add  Sub  Mul  Div  Percent CA  CE  +/-  +
```

To perform a calculation, type the first number, or operand, in the *entry* (bottom) line. Each numeral pushes the number you are typing one character to the left. (Press (FB) to reverse the sign of the number you type. For example, 10 becomes -10, and so forth. A minus sign displays in front of a negative number.)

The default operator is + (Add). Press (ENTER) to Add the amount you typed in the entry line to the amount (0.0) in the *accumulator* (top) line.

To perform an operation other than Add, type a logical operator (+, -, *, or /), or an operator function key (F1-F5). The functions and operators are as follows:

- F1 or + for addition
- F2 or - for subtraction
- F3 or * for multiplication
- F4 or / for division
- F5 or % for a percent
- F6 to clear all amounts
- F7 to clear entry (operand)
- F8 to reverse the sign of the operand

Note: A percent is the **Accumulated amount** * (operand amount/100). For example, to calculate 20% of the accumulator, type **20** as the operand, press F5 to display a percent sign; then press ENTER.

Type the logical operator or operator function key at any time before you press ENTER to calculate the result. The calculated result is displayed on the accumulator line.

Enter new operands, changing the operator when necessary, until you complete your calculations.

Press F12 to exit Calculator and continue with the current application.

Show Alarm

The Show Alarm subfunction displays Alarm event information. See Alarm in the "Main Menu Functions" chapter of this manual for information on entering events into the Alarm file.

Press ALT F3 to select the Show Alarm subfunction and display Alarm event information. The application label lines are replaced with the last event for which an alarm has sounded and the next Alarm event.

Press F12 to exit the Show Alarm subfunction and continue with the current application.

To begin entering phone numbers, move the cursor to the first blank line. Type a maximum of 3 characters to use as a quick look-up reference for a particular number, and press **(ENTER)**.

Type a maximum of 21 characters for the name (*lastname, firstname* if you want to Sort them), and press **(ENTER)**.

Type the area code and telephone number in 999-999-9999 format, and press **(ENTER)**.

Use the arrow keys to move the cursor to the PREFIX and ACODE line at the bottom of the screen.

PREFIX1-3 are for entering special codes that precede phone numbers when auto-dialing. Examples of these are codes for getting an outside line on a PBX system, long distance codes, or access codes to other phone networks. Be sure to include any required pauses for a dial tone in your codes with the letter **P**.

To select any or all of the PREFIX fields for dialing, press the appropriate function key. See "The Phone Functions" for details.

ACODE is for entering the local area code. When a number is automatically dialed, it is checked for an area code. If there is no area code entered, or if the listed area code matches ACODE, the area code is considered a local one and is not dialed. Only area codes that do not match ACODE are dialed.

The Phone Functions

To use the Phone functions displayed at the bottom of the screen, press the appropriate function key. The special Phone functions are:

Find Use Find to search for a specific phone number. Press **(SHIFT) (I)** to move the cursor to the Find line. Type the phone information for which you wish to search, and press **(F1)**. If the Find search information is found, the cursor moves to the matching phone line. Press **(F1)** again to Find the next match.

Call Press **(F2)** to Call (dial) the telephone number under the cursor. If you do not have an auto-dial modem, or if the number is invalid, the request is ignored. Any PREFIX codes entered and selected (using **(F3)**, **(F4)**, or **(F5)**) are dialed, in 1, 2, 3 order. The area code is dialed if it is different from ACODE.

- Prefix1** Press **(F3)** to select Prefix1 for automatic dialing.
- Prefix2** Press **(F4)** to select Prefix2 for automatic dialing.
- Prefix3** Press **(F5)** to select Prefix3 for automatic dialing.
- Sort** Press **(F6)** to sort all phone entries in alphabetical order, by name.
- Print** Press **(F7)** to print the phone list. (To check printer settings first, see "Printer.")
- Delete** Press **(F9)** to delete the phone entry line under the cursor.
- Add** Press **(F10)** to display a blank entry line at the current cursor location for adding a new phone number. Add new phone number lines in the same way as you first enter numbers into the file.

Press **(F12)** to exit Phone and continue with the current application.

Printer

Use Printer to adjust printer settings for all DeskMate Print functions. Press **(ALT) (F6)**. The screen displays the current printer settings. Enter new values for each, or press **(ENTER)** to use the current value, as follows:

Left Margin: 5

Enter the number of spaces you want from the left edge of the paper to the left margin.

Printed Line Width: 70

Enter the number of characters that can print on one line of your paper, if it is different than the default width. For example, although an 8½-inch page is 85 characters wide (10 characters per inch), many printers can print only 80 columns. Therefore, on an 80 column printer, 80 is the maximum line width.

Total Lines per Page: 66

Enter the length, in print lines, of the paper. Standard paper is 11 inches long; normal line spacing produces 6 lines per inch. Therefore, 11-inch paper has 66 lines per page.

Printed Lines per Page: 60

Enter the maximum number of lines to print on a page. The standard is 60, which leaves 6 lines available for top and bottom margins.

Double Space (Y/N):N

Press **(ENTER)** to keep lines single spaced. Press **(Y)** for double spacing.

Pause between Pages (Y/N):Y

Press **(ENTER)** for single-sheet forms (pause after each page to insert another sheet of paper). Press **(N)** for continuous forms.

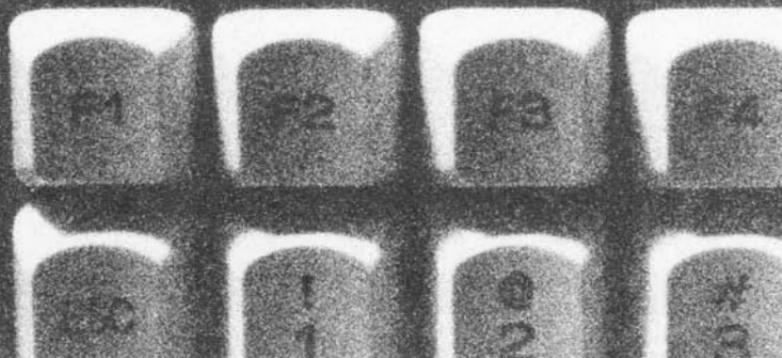
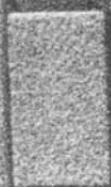
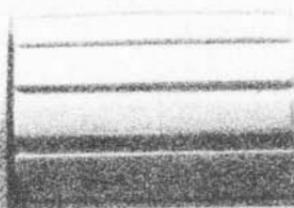
After the last prompt, the application or Main Menu screen reappears.

Date

Use Date to change the system date and time. Press **(ALT) (F7)**. On the date and time line, type the new date in *mm/dd/yyyy* format (for example, 09/22/1984 for September 22, 1984), and press **(ENTER)**. Type the new time in the 12-hour *hh:mmx* format (for example 02:45p for 2:45 p.m.), and press **(ENTER)**.

Reference

Main Menu Functions



MAIN MENU FUNCTIONS

In addition to the applications, the Main Menu provides 10 Main Menu functions. Each Main Menu Function is described in detail in this chapter.

To select a Main Menu function, press the appropriate function key at the Main Menu, as follows:

Date

Use Date to change the system date and/or time. Press **(F1)** to display a date and time line. Type the new date in *mm/dd/yyyy* format, and press **(ENTER)**. Type the new time in *hh:mmx* format. Be sure to include **a** or **p** for a.m. or p.m. and press **(ENTER)**.

Name

Use Name to change the name of a data file. With the marker on the data file you want to change, press **(F2)**. The screen shows:

Old filename: **New filename:**

The name of the data file that you marked is displayed to the right of **Old filename:**. If you did not place the marker on a data file, a blank appears. Type in the correct filename with its extension. The filename extensions are: .DOC for Text, .WKS for Worksheet, .FIL for Filer, .CAL for Calendar, and .MSG for Mail.

When the correct filename is displayed, press **(ENTER)**. The cursor moves to **New filename:**.

The most recently changed filename is displayed to the right of **New filename:**. Type in the correct filename with its extension. If no extension is supplied, the extension from the old filename is used. When the correct filename is displayed, press **(ENTER)**. The changed filename is displayed in the appropriate position on the Main Menu.

Free

Press **(F3)** to display the amount of free space (in bytes) on the current diskette.

Alarm

Use Alarm when you want to be reminded of important events. Alarm must be turned on in order to sound signaling the occurrence of an event. The alarm sounds regardless of the application you are using. You can merge Calendar events into the Alarm file or add events directly to it. Alarm automatically sorts events in **Date/Time** order and deletes events when they are passed.

Press **(F4)** at the Main Menu to select Alarm.

Alarm is always in the edit (overstrike) mode. Each character replaces the character at the current cursor position. Blank entry lines are displayed when you open the Alarm file for the first time. At this point, you can add an event by entering the appropriate data for each line.

After an Alarm file contains events, the screen displays those events (beginning with the current date) each time you open the file. To add an event to the Alarm file after it contains events, use the Add function. (See "The Alarm Functions.")

Enter all times in the 12-hour, *hhmmx* format. Be sure to include **a** or **p** to indicate a.m. or p.m. For example, type **1130 a (ENTER)** to indicate 30 minutes before noon.

Enter dates in the *mdddyyyy* format. For example, type **10221984 (ENTER)** for October 22, 1984.

Enter **Descriptions** using a maximum of 44 characters. (No uppercase/lowercase distinctions are made in searches for events. *MEETING* and *meeting* are equal.)

The Help Screen

The Help screen for Alarm contains brief summaries of the functions and ways to use them.

To view the Help screen, press **(ALT) (F1)** while in the Alarm function. Press **(F12)** to return to the Alarm screen.

The Alarm Functions

The Alarm functions are displayed at the bottom of the screen. To select a function, press the appropriate function key.

Merge Press (F6) to merge a specific Calendar file into the Alarm file. The following prompt appears:

From:

Enter the name of the Calendar file to merge into the Alarm file. **Merging in process** appears. After the merge is completed, copies of all events in the specified Calendar file appear in the Alarm file. The **Remind@** time is set to 30 minutes prior to the **Begin** time for each event.

Select Use Select to define an event or a block of events in order to perform some other operation on it. Place the marker on the first event line for inclusion in the block, and press (F7). Use the arrow keys to place the marker over the last event for the block. All selected events are highlighted as you move the marker.

After you Select the events, Copy or Delete them, as appropriate. Press (BREAK) if you decide not to use the selected events. If you use any other function or exit Alarm before you Copy or Delete, the events are unselected.

Copy Press (F8) to copy the selected event block in a document file (Text application). Press (F8) again. **To:** appears.

Enter the name of the diskette file in which you wish to store the contents of the copy buffer (the selected events). The events are copied to the document file.

Delete Press (F9) to delete all selected events. The events are immediately deleted. If no events are selected, (F9) deletes the event line under the marker.

Add Press (F10) to add a new event. A blank line is displayed. Type the data (**Remind@** time, **Date**, **Begin** and **End** times, and **Description**) for the event you wish to add. Press (ENTER) after completing each field.

The Arrow Keys

A maximum of 20 event lines are displayed on the screen at one time. After you complete the twentieth line, the screen *scrolls*, or moves up line by line, so that you can continue. To see a line after it has scrolled off the screen, press (↑) until the line appears. Press (↓) to return to the line you were typing or editing.

You can use the arrow keys to move the marker a character or line at a time. To move the marker more rapidly, you can press (SHIFT) or (CTRL) along with the arrow keys. See Table 1.

Marker Movement Keys			
Key	by itself	with (SHIFT) moves the marker:	with (CTRL)
(→)	one character to the right	to the beginning of the first field to the right	Not used
(←)	one character to the left	to the beginning of the first field to the left	Not used
(↑)	one line up in the current column	to the first event line on the screen or previous page	to the beginning of the file
(↓)	one line down in the current column	to the last event line on the screen or next page	to the end of the file

Table 1.

Host

Host allows communication between your computer, as Host, and another computer (such as the TRS-80® Model 100 Portable Computer) as a remote site terminal. At the remote site, you can receive a file from the host DeskMate, create a file and send it to the host, and create and read messages in DeskMate Mail files.

Depending on the capabilities of the remote terminal, you may be able to perform more sophisticated operations. Refer to your terminal's operating instructions. If your remote site is another DeskMate, you can perform any of the operations available in Telecom while in the Host mode. (See "Telecom" for more information.)

Setting the Modem Status and Switches

Before you use Host, set the communication parameters on the Status screen in the Telecom application. Also, define the Answer Mode in Telecom. Refer to the "Telecom" chapter for details.

Generally speaking, at the host, modem switches should be set as follows: POWER ON, ANSWER, AUTO (auto-dial), and TEST OFF. Refer to the more specific instructions for modems and modem settings in Appendix B.

Local Operation

After the host modem is properly connected and set and the communication parameters are set, press **(F5)** to enter the Host mode from the Main Menu. The screen shows:

SECURITY??? (Yes/No)

In the normal Host mode, all remote activity echoes (displays) on the DeskMate screen. When you use Host in a security mode, none of the remote activity echoes to the host. (To exit the Host security mode, you must enter the system password if one exists.)

Press **(N)** for normal Host mode or **(Y)** for the security Host mode. DeskMate is now ready for access by the remote site. No other local activity is allowed in Host.

To exit Host at the DeskMate site, press **(F12)**. If a system password exists and Host is in the security mode, enter the password. (Note that the password never echoes to the screen.) The Main Menu returns.

Remote Site Setup

Properly connect the modem at the remote site. Next, set the remote site modem status and communication parameters, using the remote's terminal software and/or modem switches. Generally, at the remote site, all modem settings and parameters should be the same as at the host, except for the modem's ORIGINATE/ANSWER switch. Set this switch to ORIGINATE at the remote site.

For example, for a Model 100 using the built-in modem, the settings are:

Baud Rate	=	M (built-in modem)
Word Length	=	(same as Host setting)
Parity	=	(same as Host setting)
Stop Bit	=	(same as Host setting)
Line Status	=	E (enable — XOFF)
Pulse Rate	=	10pps

Follow the instructions for the remote site's terminal software and modem. Also, refer to the more specific instructions for modems and modem settings in Appendix B.

Remote Site Operation

Enter the interactive terminal mode, or display the proper screen for connecting with a host computer. Dial (or auto-dial, if so equipped) the number of the telephone line to which the host (DeskMate) is connected.

For example, for a Model 100 at the Model 100 Telecom Entry screen, Find (or type) the number, then Call it.

Press **ENTER** twice to establish communication between your remote terminal and the host, DeskMate.

Note: **ENTER** in the previous paragraph refers to a carriage return. Some terminals use another label for this key, such as **RETURN** or **CR**. For the sake of simplicity, however, we use **ENTER** to refer to the carriage return key on both the DeskMate and the remote terminal.

If a DeskMate password exists, **Password:** appears on the remote screen (and echoes to the host if not in security mode). Type the DeskMate password, and press **(ENTER)**. (For security, the password you type does not echo at the host.) After the password is correctly entered, the DeskMate Remote Menu appears:

```
REMOTE DESKMATE
1) DIRECTORY
2) READ FILE FROM HOST
3) SEND FILE TO HOST
4) READ MAIL
5) SEND MAIL
6) LOG OFF
  SELECT OPTION >
```

Note: If, in 3 tries, you do not enter the correct password, Host disconnects the remote site.

Type the appropriate menu number, and press **(ENTER)** to use a remote function. To redisplay the Remote Menu at any time, from any function, press **(CTRL) (C)**. Press **(CTRL) (S)** to pause during any remote function; press **(CTRL) (Q)** to resume operation. The remote functions are:

Directory Select Option 1 to display a Directory Menu of the DeskMate file types available:

```
DIRECTORY MENU
1) MAIL                5) WORKSHEET
2) CALENDAR            6) AUTOLOG
3) TEXT                7) ALL
4) FILER
  SELECT OPTION >
```

Enter the appropriate number to display a list of all the DeskMate files for a particular application. (Autolog displays the automatic logon files created in Telecom.) The filenames are displayed on the screen.

Option 7 displays all files in DeskMate, by application, in the order in which they are listed on the Directory Menu.

The files' corresponding applications are identified by the filename extensions: Mail is .MSG, Calendar is .CAL, Text is .DOC, Filer is .FIL, Worksheet is .WKS, and Autolog is .LOG.

After displaying the files, press **(CTRL) (C)** to redisplay the DeskMate Remote Menu.

Read File From Host Select Option 2 to receive a DeskMate file at the remote site. The screen shows:

```
READ FILE FUNCTION
ENTER HOST FILENAME >
```

Enter the filename exactly as it appears in the DeskMate Directory, including the proper filename extension. (If you do not enter an extension, .DOC is assumed.) The contents of the file display on the remote screen. The file displays 1 line at a time if you are not using automatic line feed at the remote terminal.

Read File From Host is generally used in conjunction with a printer or RAM buffer option at the remote terminal. Toggle the printer or open the RAM buffer before receiving the file. Consult your terminal's operating instructions for specific information.

(CTRL) (S) pauses receiving/displaying of a file at any time; **(CTRL) (Q)** continues.

If your terminal software supports it, you can edit a file saved into the RAM buffer and send it back to DeskMate, using the Send File function. Note that if you do not choose a different name than the original for the edited file, the following prompt appears:

```
OVERWRITE FILE? Y/N
```

Press **(Y)** to replace the old file with the new file. If you press **(N)**, you are prompted to enter a **NEW FILENAME**.

Send File To Host Select Option 3 to send a file from the remote site to DeskMate. The screen shows:

```
SEND FILE FUNCTION
ENTER HOST FILENAME >
```

Enter a filename for the file you are sending, including the proper filename extension. (If you do not enter an extension, .DOC is assumed.) If the filename matches any existing filename in DeskMate, the overwrite prompt appears.

(CTRL) (S) pauses sending/displaying of a file at any time; **(CTRL) (Q)** continues.

Read Mail Select Option 4 to read DeskMate mail at the remote site. The screen shows:

```
READ MAIL FUNCTION
MAIL FOR >
```

Enter the name of the Mail file from which you want to read messages. You do not have to enter the .MSG extension. (For example, enter **MESSAGES** to read mail from the default file.)

The first screen of messages is displayed with the following prompt.

```
SELECT A-S, OR ENTER TO CONTINUE
```

Type the appropriate letter (A-S) to select a message. If there are more messages, press **(ENTER)** to view additional screens.

Press **(CTRL) (C)** to return to the DeskMate Remote Menu.

Send Mail Select Option 5 to send a message to DeskMate from the remote site. The screen shows:

```
SEND MAIL FUNCTION
TO >
```

Enter the name of the Mail file to which you want to send a message. You do not have to enter the .MSG extension. (For example, enter **MESSAGES** to send mail to the default file.) The screen shows:

```
FROM >
```

Enter your name (a maximum of 8 characters). The screen shows:

SUBJECT >

Enter a description for the message (a maximum of 32 characters). The screen shows:

**ENTER MESSAGE, USE CONTROL C
TO END MESSAGE**

Type the message, using a carriage return to start a new line as necessary. Backspace is the only editing feature available in message creation. Press **CTRL C** to end the message and send it to DeskMate. The DeskMate Remote Menu is then displayed.

Log Off

Use Option 6 to disconnect communication between the remote site and the host (DeskMate). The screen shows:

REMOTE LOG OFF

(Press **F12** at the Host screen in DeskMate after disconnecting communication from the remote site. DeskMate returns to the Main Menu.)

Password

Press **F6** to assign a password restricting access to DeskMate on initial entry into the system and on exiting the Host security mode. The screen shows:

Enter New Password

Type a password with a maximum of 8 characters. A valid password begins with a letter and contains no punctuation or blanks. Press **ENTER**. The Main Menu appears.

Select

Use Select to define more than one data file for deletion. Position the marker on the first file you want to select. Press **F7**. Now position the marker on the last file for selection (in the same application column), and use Delete.

Copy

Use Copy to duplicate a data file on diskette. Position the marker over the file you want to copy, and press **(F8)**. The screen shows:

From filename:XXXXX.XXX To filename:

The **From** filename with its extension is displayed. If the filename is incorrect or blank, type the filename with its extension. Press **(ENTER)**. Type a filename for the new file and press **(ENTER)**.

Delete

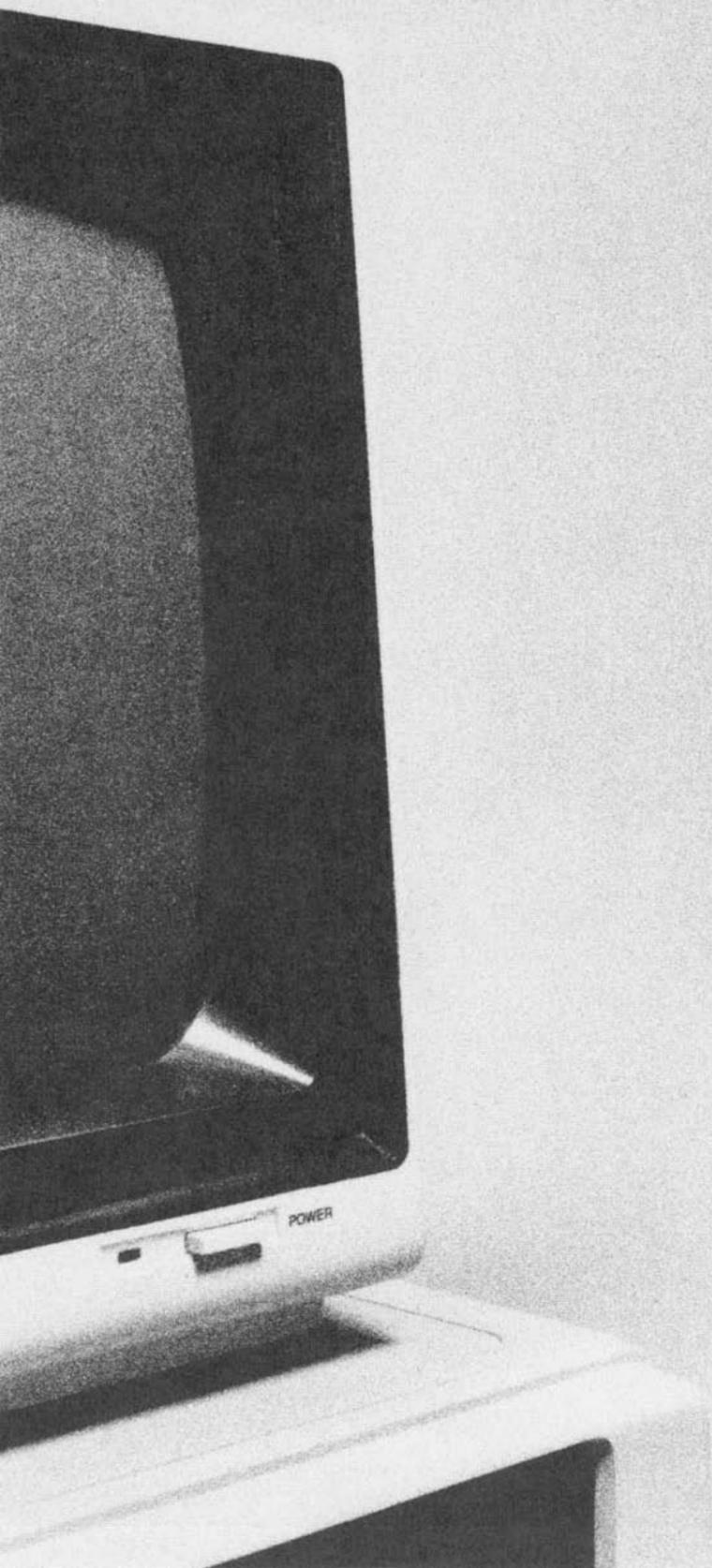
Press **(F9)** to delete the data file under the marker or all selected files (in one application) from the DeskMate diskette. The filename of the marked data file is displayed. Enter the correct the filename if necessary, and press **(ENTER)** to proceed. The data file is deleted.

Swap

Press **(F10)** to activate the drive not currently in use (2-drive system). For example, at the **Current:** prompt, type **B:** to indicate Drive B.

Reference

Text



TEXT

The Text application is an easy to use, yet powerful text editor program. Use Text to prepare everything from quick memos to letters, articles, and reports.

You can rearrange, delete, and insert text, as well as change the format of your document. You can print documents, combine documents, and save all or a portion of a document to diskette.

Using Text

To create a new document file, place the marker over Text, press **(ENTER)**, and enter the new filename. The first screen for that document is displayed.

To open an existing document file, position the marker over the filename, and press **(ENTER)**. The first page of the selected document file is displayed.

The first 22 lines of the screen hold your document. The Text functions are displayed on the next 2 lines. The last line indicates location (line number and page number) of the marker.

After you fill the screen through the twenty-second line, the screen scrolls, or moves up line by line, to let you continue. To see a line after it has scrolled off the screen, use the arrow keys as described in the arrow keys section of this chapter.

The Help Screens

The 2 Text Help screens contain brief summaries of the functions and ways to use them. Within the Text application, press **(ALT) (F1)** to view the first Help screen. To view the next Help screen, press **(ENTER)**. Press **(F12)** to return to the Text screen.

The Arrow Keys

Use the arrow keys to move the marker a character or line at a time. Pressing **(SHIFT)** or **(CTRL)** along with the arrow keys moves the marker more rapidly. Refer to Table 2 for exact marker movement.

Marker Movement Keys			
Key	by itself	with (SHIFT) moves the marker:	with (CTRL)
(→)	one character to the right	one word to the right	to the right margin of the current line
(←)	one character to the left	one word to the left	to the left margin of the current line
(↑)	one line up in the current column	to the top of the screen in the current column, or to the top of the previous screen if already at the top or press (PG UP)	to the beginning of the document or press (HOME)
(↓)	one line down in the current column	to the bottom of the screen in the current column, or to the bottom of the next screen if already at the bottom or press (PG DN)	to the end of the document or press (END)

Table 2.

The Text Functions

Use Text functions (listed at the bottom of the Text screen) to manipulate the text within your document and from document to document. To select a function, press the appropriate function key.

Find

Press (F1) to search for and Find a *string* (sequence of characters) of as many as 40 characters. The following prompt appears at the bottom of the screen:

Search string:

Type the string you want, and press (ENTER). Find ignores uppercase and lowercase. For example: *STRING* and *string* are recognized as equal. If the string is found, the line containing the string is displayed at the top of the screen. To find the next occurrence of the string, press (F1) again, then press (ENTER) to use the same search string.

Substitute

Press (F2) to search for a string and replace it with another string. The screen shows:

Search string:

Enter the string you wish to replace. The screen shows:

Replacement string:

Enter the string you wish to Substitute. The first occurrence of the string is found. The screen shows:

Replace? (Y/N)

Press (Y) to replace this occurrence of the string. Press (N) to skip those occurrences that you do not wish to replace with the new string. Press (BREAK) at any time to cancel any further substitution.

Add/Replace

Press (F3) to toggle Text between the Add and Replace modes. Add (insertion) is the default mode. Everything you type is inserted (added) at the current marker position, and any text following the marker is shifted to the right one space for every character inserted. In the Add mode, (BACKSPACE) deletes the previous character, moves one space to the left, and closes up the text.

In Replace (overstrike) mode, each character you type overstrikes (replaces) the character under the marker. The text is not moved. Note that you cannot replace a carriage return. You must skip over a carriage return when in this mode, toggle to Add mode and insert characters in front of it, and/or use **DELETE** to remove it. In the Replace mode, **BACKSPACE** erases the previous character, moves one space to the left, and leaves the space blank.

Format

You can Format the screen to any width you choose. For example, you may want to use the same width as your printed document so that you can see how it will look when printed. The maximum screen width is 79 characters.

Press **F4** to specify the screen Format you want to use for your document. The following prompt appears:

```
Line Width = 70
```

Enter the number of characters you want to appear across each line on the screen.

Merge

Press **F5** to Merge (combine) a copy of another document with the document on which you are currently working. The following prompt appears:

```
Enter merge filename:
```

Enter the name of the document file that you want to Merge into your document, and press **ENTER**. The length of the document file is checked, and if there is enough room, it is copied into the document at the current marker position.

If there is not enough room in your document for the entire Merge document file, the merge is cancelled, and the screen displays:

```
Not enough memory [ENTER] to continue
```

Save

Press **(F6)** to Save a copy of this document to a diskette file. The following prompt appears:

Enter save filename:

Enter the name of the file to which you wish to Save this document, and press **(ENTER)**. If you do not enter a filename, the document name is used, and the file is saved onto the diskette in Drive A or the Drive you specified in the Main Menu Swap function.

Select

Use Select to define a word or block of text in order to perform some other operation on it. Position the marker on the first character you want to select, and press **(F7)**. Then, use the arrow keys to place the marker over the last character in the block. All highlighted text between the first and current marker positions is selected.

After you select your text, Copy or Delete it, as appropriate. Press **(F7)** if you decide not to use the text you have selected. If you use any other Text operation except Find or exit the Text function before you Copy or Delete, the text is unselected.

You can use the Find function to display text for selecting. Use Find to search for the first character, word, or string you want to include in your text block. Then select the block as usual.

Copy

Press **(F8)** to place all selected text in the copy buffer. Copy does not delete the text but merely makes a duplicate of it. You can Insert this duplicate somewhere else in your document or Copy it to a diskette file. Copy can also save all or part of a document file to diskette or duplicate a diskette file and copy it to this document.

To Insert duplicated text at another location, move the marker to the appropriate position, and press **(F10)**. The text is inserted at that position.

To Copy the contents of the copy buffer to or from a diskette file, press **(F8)** again. (When copying from a diskette file, do not select text before you use Copy.) The following prompt appears:

From: **To:**

Enter the name of the diskette file from which you wish to Copy text into this document. The file is loaded into the copy buffer. If there is not enough room in the copy buffer for the entire document file, the **From:** message is cancelled, and the screen shows:

Not enough memory

To copy the text currently in the copy buffer, press **(ENTER)** to move to the **To:** prompt. Enter the name of the diskette file to which you wish to copy the text. The text is appended to that file.

Delete

Press **(F9)** or **(DELETE)** to Delete all selected text. The text is immediately deleted. If no text is selected, the character under the marker is deleted.

Insert

Press **(F10)** or **(INSERT)** to Insert the contents of the copy buffer at the current marker position.

Print

Press **(PRINT)** to Print the entire document. Make sure that you have checked the printer settings in the Printer subfunction (subfunction **(ALT) (F6)**) and that your printer is ready to print.

Note: To print part of a document, you can use the print command **(SHIFT) (PRINT)** and print everything currently on the screen. Use the Find function or the arrow keys to display the text you want to print.

Worksheet



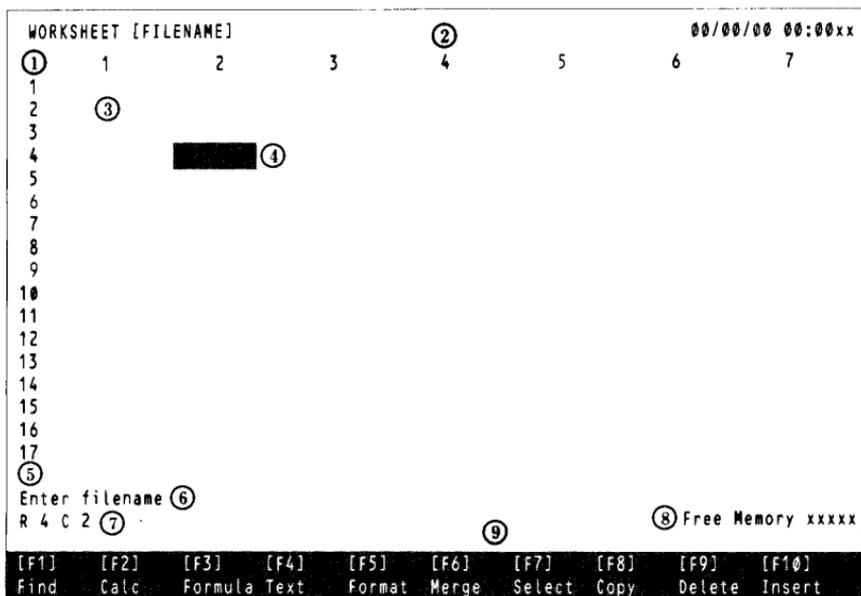
WORKSHEET

With Worksheet, you can easily perform complex calculations for budgeting, forecasting, statistical analysis, engineering, and many other previously tedious tasks on a spreadsheet that you customize to meet your specific needs. You can find data quickly and copy and merge files, as well as print all or part of a spreadsheet.

Using Worksheet

To create a new worksheet file, place the marker over Worksheet, press **(ENTER)**, and type the new filename. An empty worksheet screen is displayed.

To open an existing worksheet file, place the marker over the filename, and press **(ENTER)**. The first worksheet screen for that file is displayed.



If you use the default column width (10 characters), no setup procedures are necessary. You can begin entering your worksheet data right away. There are four types of data you can enter: numeric data, formulas, cell text, and block text. See "The Worksheet Functions."

- ① Row numbers appear down the left side of the screen in the Row Label area.
- ② Column numbers appear across the top of the screen in the Column Label area.

A *window* consisting of 17 rows and 7 columns (more or less, depending on the column width you set) can be displayed on the screen at one time. You can have as many as 99 rows and 99 columns in each worksheet. To move from window to window in the worksheet, use the arrow keys or the Find function.

- ③ Each intersection of a row and a column is a *cell*.
- ④ The highlighted rectangle is the entry marker. Use the entry marker to select a cell for data entry.
- ⑤ To add data to the worksheet, position the entry marker on the correct cell, type the data on the data entry line, and press **(ENTER)**. The entry is displayed in the cell simultaneously.
- ⑥ The command line either prompts you to select a function or displays the function you are currently using. Error messages and warnings also are displayed on this line.
- ⑦ The cell status line indicates the cell currently highlighted by the entry marker (R4C2). The data contained in that cell is displayed to the right of the cell number.
- ⑧ The amount of Free Memory is displayed at the right end of the cell status line.
- ⑨ The Worksheet functions are listed on the last two lines of the screen.

To exit Worksheet, press **(F12)** (saves changes) or **(SHIFT) (F12)** (cancels changes). Press **(Y)** at the prompt to confirm the command.

The Help Screens

The 7 Worksheet Help screens contain brief summaries of the functions and ways to use them. Within the Worksheet application, press **(ALT) (F1)**. The screen most appropriate to your current situation on the Worksheet is displayed. Press **(F12)** to return to the Worksheet.

The Arrow Keys

Use the arrow keys to move the entry marker from cell to cell and to the row and column Labels. The arrow keys move the marker a cell at a time, in the direction of the arrow. Press **(SHIFT)** or **(CTRL)** along with an arrow key to move the marker more rapidly. See Table 3.

Key	by itself	Marker Movement Keys	
		with (SHIFT) moves the marker:	with (CTRL)
(→)	one cell (or column Label) to the right	to the last column on the screen, or to the last column on the next screen if the entry marker is in the last column	to Column 99 in the current row
(←)	one cell (or column Label) to the left	to the first column on the screen, or to the first column on the previous screen if the entry marker is in the first column	to Column 1, or to the row Label if entry marker is in Column 1
(↑)	one cell (or row Label) up	to the first row on the screen, or to the first row on previous screen if the entry marker is in the first row	to Row 1, or to the column Label if the marker is in Row 1
(↓)	one cell (or row Label) down	to the last row on the screen, or to the last row on the next screen if the entry marker is in the last row	to Row 99 in the current column

Table 3.

The Worksheet Functions

The Worksheet functions are displayed at the bottom of the screen. To select a function, press the appropriate function key.

Find

Press **(F1)** to search for and Find a string of characters or a specific cell. The following prompt appears:

S p e c i f y s t r i n g o r c e l l

Enter the cell contents that you want to Find. The window containing that cell is displayed. The entry marker highlights the cell.

When searching for a specific cell, only a valid cell number is recognized. Type **R**, the row, then **C**, and the column number. The window containing that cell is displayed with the entry marker highlighting the cell. If a row or column number is omitted, the row or column number corresponding to the cell location of the entry marker is taken.

Note that you cannot search for a string entered using the Text function. Find searches for data by cell and therefore disregards Text, since it is not cell oriented.

To find the next occurrence of the same search string, press **(F1)** again.

Calc

Press **(F2)** to Calculate the worksheet you set up. Also use Calc to recalculate a worksheet in which you make changes. Data is calculated according to cell contents, from left to right and top to bottom. Any non-numeric data is skipped. Results of the calculation are displayed in the cells in which formulas were entered.

Formula

To enter a formula into a cell, position the entry marker on that cell. Press **(F3)** to mark the cell for formula entry, then enter the formula on the data entry line.

To enter a formula into several cells, select the cells, using **(F7)** and the arrow keys. Next, mark them for formula entry, then enter the formula.

To erase values in formula cells while leaving the formula intact, press **(CTRL) (F)**.

Within a formula, mathematical operations are performed from left to right. Parenthetical operations are performed first, multiplication and division second, and addition and subtraction last. When parentheses are nested, the innermost operations are performed first. The operations available for use in formulas are given in Table 4.

Formula Operations			
between two cells:			
+	Addition	*	Multiplication
-	Subtraction	/	Division
		!	Power
for a row, column, or selected block:			
AVG	Average (mean) of the values	MIN	Minimum value
		RMT	Cumulative sum of the row
CMT	Cumulative sum of the column	SUM	Sum of the values
MAX	Maximum value		
for a cell:			
ABS	Absolute Value	LOG	Logarithm
ATN	Arctangent	SGN	Sign
COS	Cosine	SIN	Sine
EXP	Exponential	SQR	Square root
INT	Integer truncation	TAN	Tangent

Table 4.

Two special characters can also be used in a formula: A question mark (?) indicates a constant that is entered at the time of calculation (Calc), and a number sign (#) indicates a cell in a formula that is not adjusted for each successive row or column, but remains constant. The # is required in CMT and RMT formulas, but is useful in other formulas as well.

Following are examples of formulas using some of these operations.

? CONST A Sets a cell up to receive a constant (labeled CONST A) to be entered at the time of calculation.

(R1 + R2) Adds 2 cells in the same column.

- (C3)–(R1C4)** Subtracts the value of the cell in Row 1, Column 4 from the value of the cell in Column 3 of the current row.
- C1*C2** Multiplies 2 cells in the same row.
- (R1C2)/100** Divides the value of the cell in Row 1, Column 2 by 100.
- C6R3!3** Calculates the cube of the value of the cell in Row 3, Column 6.
- ABS(R2C3)** Multiplies the value of the cell in Row 2, Column 3 by -1 if (and only if) it is a negative number (absolute value).
- ATN(R3C5)** Displays the arctangent of the value of cell R3C5—the angle that has its tangent equal to the value of cell R3C5. (The result displays in radians; use **ATN(R3C5)*57.29578** to display the arctangent in degrees.)
- AVG(C1)** Adds all the values in the current row, beginning with Column 1, over to the current cell, skipping any non-numeric data, and divides by the number of numeric cells added.
- CMT(#R4C3)** Gives a cumulative total for Column 3, beginning with Row 4. For example:
- | | | |
|-------|-------|-------|
| | [3] | [4] |
| [4] | 5.00 | |
| [5] | 10.00 | |
| [6] | 20.00 | |
- If cells 4, 5, and 6 of Column 4 are selected and the above formula is entered, calculation produces the following results:
- | | | |
|-------|-------|-------|
| | [3] | [4] |
| [4] | 5.00 | 5.00 |
| [5] | 10.00 | 15.00 |
| [6] | 20.00 | 35.00 |
- COS(R3C5)** Displays the cosine of the value of cell R3C5. (Use **COS((R3C5)*.01745329)** if the value in cell R3C5 is in degrees instead of radians.)

- EXP(R4C3)** Displays e raised to the power of the value of cell R4C3 (Napierian, or natural exponential e^x).
- INT(R4C2)** Displays the truncated value of cell R4C2.
- LOG(R2C4)** Displays the logarithm to the base 10 of the value of cell R2C4.
- MAX(C4)** Displays the maximum value of the current row, beginning with Column 4, over to the current cell, skipping any non-numeric data.
- MIN(R1)** Displays the minimum value in the current column, beginning with Row 1, down to the current cell, skipping any non-numeric data.
- RMT(#R4C3)** Gives a cumulative total for Row 4, beginning with Column 3. For example:
- | | | | |
|-------|-------|-------|-------|
| | [3] | [4] | [5] |
| [4] | 5.00 | 10.00 | 20.00 |
| [5] | | | |
- If cells 3, 4, and 5 of Row 5 are selected, and the above formula is entered, calculation produces the following results:
- | | | | |
|-------|-------|-------|-------|
| | [3] | [4] | [5] |
| [4] | 5.00 | 10.00 | 20.00 |
| [5] | 5.00 | 15.00 | 35.00 |
- SGN(R3C4)** Displays the sign of the value in cell R3C4 (displays 1.00 if the argument is positive or zero, and -1.00 if it is negative).
- SIN(R2C1)** Displays the sine of the value of cell R2C3 (use **SIN((R2C1)*.01745329)** if the value in cell R2C3 is in degrees instead of radians).
- SQR(R5C1)** Displays the square root of the value of cell R5C1.
- SUM(R5)** Displays the sum of the values in the current column, beginning with Row 5, down to the current cell, skipping any non-numeric data.
- TAN(R2C3)** Displays the tangent of the value of cell R2C3 (use **TAN((R2C3)*.01745329)** if the value of cell R2C3 is in degrees instead of radians).

Text

If you require more space for text than a single cell, or if you want a more formal-looking worksheet, you can select a block of cells in which to enter Text. The Text boundaries are defined by the selected block as a whole, rather than by each individual cell in the block. The program creates a window for writing, editing, and manipulating Text.

Press **(F4)** to enter (or edit existing) Text in a selected area. (See "Select.") Word wrapping is automatic, and you can use limited editing features in Text.

Press **(BACKSPACE)** to delete the Text character preceding the cursor. **(DELETE)** deletes the character highlighted by the cursor. **(CTRL) (W)** deletes text from the cursor to the start of the next word. **(CTRL) (L)** deletes text from the cursor to the next carriage return. **(CTRL) (D)** deletes text from the entry marker to the end of the Text block.

Existing text blocks can be reformatted into larger or different shaped blocks in the same or slightly altered location. To do so, select a block of cells including at least one cell of the existing text block that you wish to reformat. Press **(F4)**. The Text block is reformatted into the newly selected block.

To exit the Text function with current changes intact, press **(F12)**. To restore Text to pre-edited condition, or to cancel a new block selection for Text, press **(SHIFT) (F12)**.

Format

Use Format to change column widths, number, or alphanumeric data format. Press **(CTRL) (i)** while the entry marker is in Row 1. The marker moves up into the Column Label area. Move the marker onto a column you want to change. To change all columns to the same width, move the entry marker to the Column Label area, and press **(F5)** for Format. The following message appears on the command line:

Specify ALL, width or width

Type **ALL**, and the new width to change the width of Columns 1-99. Type only the new width to change the width of the current column.

To use Format to specify a certain number format for existing cell data, place the entry marker on the cell you want to change, and press (F5). The screen shows:

Specify format types

At the data entry line, enter the letter for the format you wish to use, as follows:

- L = left-justified
- R = right-justified
- D = decimal (up to 7 decimal places)
- I = integer (whole number)
- \$ = dollar format (two digits after the decimal)

You can enter more than 7 digits after a decimal, but precision is lost after 7. You can also select a group of cells to format.

Note to Color Monitor Users: You can designate a special color for a particular cell or Text block while using Format. Type ,C= and one of the following: **BLU**, **GRN**, **CYN**, **RED**, **MAG**, or type **NOR** (normal) to reset to the original color arrangement. The special color designation is saved to diskette.

Merge

Press (F6) to save a selected block to diskette or insert data from a diskette file at the current marker position. If nothing is selected, the second prompt is displayed:

SAVE: Enter filename.

or

LOAD: Enter filename.

At the data entry prompt, enter the name of the file in which you wish to save the selected block or from which you wish to load and insert at the current marker position. (If Text is encountered and the entire Text block is not included in the selected area, the Text can be copied as individual cells.)

Select

Use Select to define a block of the worksheet. Position the entry marker on the first cell for the block, and press (F7). Move the marker to the last cell that you wish to include. All selected cells are highlighted.

After you select the block, use Formula, Text, Format, Merge, Copy, Delete, or Print as appropriate.

Copy

Press **(F8)** to place a selected area in the copy buffer. If Text is encountered (maximum of 10 Text blocks) and an entire Text block is not included, the Text is copied as individual cells. Use Insert to place the contents of the copy buffer in another area on the worksheet.

(SHIFT) (F8) releases the memory used by the copy buffer.

Delete

To delete an entire row or column, position the marker in a Row or Column Label and press **(F9)**. All formulas are adjusted to correctly reflect the row or column deletion. Text blocks do not shift.

On the worksheet, press **(F9)** to Delete the data in the current cell or all selected cells. If Text is encountered (maximum of 10 Text blocks) and an entire Text block is not included in selected area, that Text block is skipped, and deletion continues with the next non-Text cell.

Insert

Press **(F10)** within a Row or Column Label to insert a blank row or column at the current position. All formulas and Text blocks are adjusted to correctly reflect the row or column width. Text blocks do not shift.

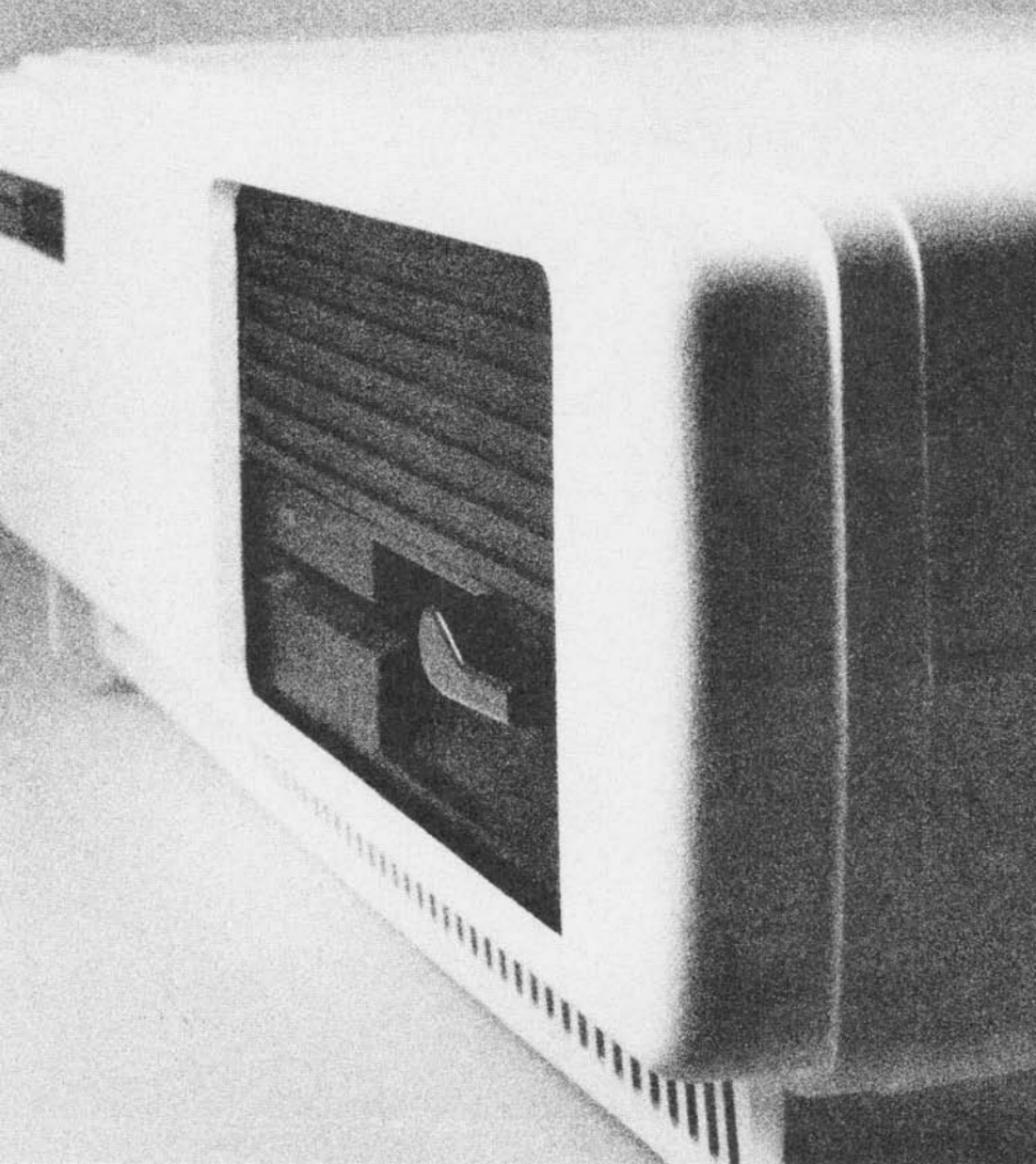
On the worksheet, press **(F10)** to insert the contents of the copy buffer at the current entry marker position. Row data can only be inserted into another row. Column data can only be inserted into another column.

If the destination area contains any Text cells or if the contents of the copy buffer will not fit, the command is ignored.

Print

Press **(PRINT)** to print the selected area of the worksheet or the current window if no area is selected. Make sure the printer settings are correctly adjusted (in the Printer subfunction) before you use the print function.

Filer



FILER

The Filer application provides information storage and retrieval. Filer is easy to set up, maintain, and access. You can refer to the files you set up at any time.

Filer's flexibility permits you to set up a custom data entry form for each file so that you can include any information in any desired format. You can sort or search for a record by any of the fields that you set up on the Filer form. You can also automatically dial a phone number listed in your file, print records or list them to the screen, combine 2 Filer files, add or delete records from the file, and copy records to another diskette file.

Using Filer

Place the marker over Filer and press (ENTER) to create a new file. Then, enter the new filename.

To open an existing file, position the marker over the filename, and press (ENTER).

When you first create a file, no format is set up, and no records exist. A blank Form screen is displayed. Before you enter records into a file, you must set up a Form for that file. Set up the labels and fields you want to include in your file. (See "The Filer Functions—Form" for more information.)

When you open an existing file (one that has a format defined), the first record is displayed. A blank Filer entry screen is displayed if a file format exists but no records are currently in the file.

You can examine or change the displayed record or press (CTRL) (-) and display the next record. If no records are in the file (a blank record form displays), you can enter the data for your first record. (See "Adding Records.")

Note: If you have a 128K computer, you can have a maximum of 550 records per file. If you ever have trouble using Filer, review the CONFIG.SYS file to see if it contains ANSL.SYS or LPDRVR.SYS. If it does, remove them. Ideally, boot up using a diskette that contains no CONFIG.SYS file.

The Help Screens

The 5 Filer Help screens contain brief summaries of the functions and ways to use them. The first 2 screens contain general information. Within the Filer application, press **(ALT) (F1)**. After the first Help screen is displayed, press **(ENTER)** to view the second screen. Press **(F12)** to return to the main Filer screen.

The remaining 3 screens are for specific information concerning Find, Form, and Display. Press the appropriate function key, and then press **(ALT) (F1)**. Press **(F12)** to return to the appropriate function screen.

The Arrow Keys

Use the arrow keys to move the marker a character or line at a time. Press **(SHIFT)** or **(CTRL)** along with the arrow keys to move the marker more rapidly. See Table 5.

Marker Movement Keys			
Key	by itself	with (SHIFT) moves the marker:	with (CTRL)
(→)	one character to the right	to the Field area in Form	to the next Find match or to the next record
(←)	one character to the left	to the Label area in Form	to the previous Find match or to the previous record
(↑)	one line up in the current column or to the first character in the previous field	to the first field on the screen	to the first Find match or to the first record on file
(↓)	one line down in the current column or to the first character in the next field	to the last field on the screen	to the last Find match or to the last record on file

Table 5.

The Filer Functions

The Filer functions are displayed at the bottom of the screen. To select a function, press the appropriate function key.

Find

Press **(F1)** to search for and Find a record or group of records. The Find function screen displays a blank form with the special Find functions (Equal, Greater, Less, Reset, Mark) at the bottom of the screen. The marker is on the primary key (Order) field.

Type the search data for each field. You can include * and ? as *wildcard* indicators. Type * before or after data in a field to disregard all characters that appear before or after the data, respectively. The use of ? is similar, except that it causes only 1 character to be ignored. (Use wildcard indicators only if you use equal (=) as the Find operator.) Press **(ENTER)** or **(I)** to skip any field.

Press a function key (**(F1)**, **(F2)**, or **(F3)**) to set the Find criteria Equal to, Greater than or equal to, or Less than or equal to the information you have typed in that field. The default is Equal. (Choose the function any time the marker is over the appropriate field—before, during, or after you enter the data.)

Press **(F12)** to begin the search. If search criteria exist for more than 1 field, Find searches for records that match all the criteria. All records that match the criteria are found, and the first one is displayed. Use **(CTRL)** with the **(←)** and **(→)** keys to scroll forward or backward through the records.

Special Find functions are:

Reset Press **(F5)** to Reset the Find criteria. The records are reset, and the main Filer screen is displayed.

Mark Press **(F7)** to mark or unmark the fields when you use the Display and Print functions. Marked fields are visible—displayable or printable. An asterisk appears in the Label area of all visible fields. Invisible fields do not Display or Print. The default is visible.

Call

Define Voice dialing in "Telecom." Press **(F2)** to dial any phone number currently highlighted. If a valid sequence of numbers is highlighted, the number is dialed. Pick up the telephone receiver for normal conversation. Filer operation resumes at the point at which you made the request.

Display

Press **(F3)** to display a list of all records that match the Find criteria.

A Label line is displayed at the top of the screen. The data for the records chosen is displayed horizontally. The data for each field appears under its corresponding Label. The length of each field is determined by the longest item of data entered for that field. Two spaces are inserted between each field.

Wrapping. If the records take up more than 80 characters across the screen, the records (Label line and data lines) wrap to the next line, indented 5 spaces.

Eliminating Fields from the Display. If you do not wish to display certain fields, unmark those fields in Find.

Scrolling Through the Records. If more records are chosen to display than can fit on the screen, use the arrow keys to scroll through the records. (See "The Arrow Keys.")

Press **(F12)** to return to the main Filer screen.

Print

Press **(F4)** to Print a list of all records that match the Find criteria. Make sure that you have first set the printer settings in the subfunction, Printer.

The record list prints. A Label line appears across the top of the paper. The data for the records chosen is printed horizontally. Each field appears under its corresponding Label. The length of each field is determined by the longest item of data entered for that field. Two spaces are inserted between each field.

Wrapping. If the records use more characters than are available on 1 line, the records (Label line and data lines) wrap to the next line, indented 5 spaces.

Eliminating Fields from the List. If you do not wish to print certain fields, unmark those fields in Find.

Note: To print only 1 record, use the print command **(SHIFT) (PRINT)**, and print everything currently on the screen, including the label line. Use the Find function or the arrow keys to display the record you want to print.

Form

Press **(F5)** to display the Form screen. For each field you want to include in your records, you must set up a field in Form. A format field line consists of a Label and a Field area. You can define a format with a maximum of 21 fields.

Defining a Label. The left side of the screen is reserved for field Labels. A Label always begins at the left margin. Type 1 or more characters (a maximum of 15) on a line in this area to create a new field on that line. Press **(ENTER)** after you complete the Label. The unused Label area fills with a line of dots and a colon. The marker is positioned to set up the Form for the Field area.

Note: For blank lines between field lines, press **(ENTER)** or **(I)** before you enter any characters in the Label area.

Defining a Field Area. Press **(ENTER)** in the first position of the Field area to display a line of insert dots, and specify a maximum of 59 alphanumeric characters for a line of data in this field. (See "Number" if you want to set up a numeric field.) Press **(ENTER)** again to move to the next line.

You can enter a maximum of 255 insert dots. Press **(ENTER)** at the beginning of a line to fill the line with insert dots. If the Field length is greater than 59, it wraps to the Field area on the next line. The Label area on that line is left blank.

You can enter fewer than 59 insert dots in a line or combine them with *edit characters*. To enter insert dots one-by-one press **(F10)** for each dot.

Edit characters convey a certain type of required entry—in either alphanumeric or numeric data fields. A common use of edit characters is for formatting telephone numbers; for example:

(. . .) . . . -

The parentheses, the space, and the dash are edit characters; they are skipped over during data entry.

Special Form functions are:

Order In data entry, records are sorted in the order you set here. The ordered, or *key*, fields are sorted first, in ascending order. Then, the rest of the fields are sorted in their order of appearance on the screen. The priority number of ordered keys appears in the Label area on the screen.

Press **(F1)** to make the field under the marker a key field. The screen shows:

>Priority Number:

Enter the priority for this key. If you press **(ENTER)** without entering a priority number, the field is given the next available number (1 if no fields are ordered yet).

If you choose a field that is already a key, press **(ENTER)** to leave the priority unchanged, or enter a new priority. If an existing priority is used, the priority numbers are shifted to allow for it.

A priority number of 0 removes the key status of a field and reorders the keys.

Pack Press **(F2)** to Pack the file when the efficiency decreases because of many additions, deletions, and changes to records. The file efficiency (A, B, C, or D) displays on the Form screen. Pack if the efficiency drops below B. If efficiency drops to D, it is displayed on the main Filer screen. Use Pack immediately to recover lost diskette space.

Number Press **(F3)** to specify the field under the marker as a numeric field. A number sign (#) appears in place of the colon for a numeric field. (Press **(F3)** again to change the field back to alphanumeric.)

If the Field is not yet set up when you use Number, Filer sets it up for 12 digits, a decimal, and 2 decimal places. You can edit the number of digits on either side of the decimal with Add or Delete. Data entered in the field aligns around the decimal.

If the Field is already defined, Number right-justifies any data entered in the field when it is displayed or printed.

Delete In the Field area, press (F9) to delete the character under the marker.

In the Label area, press (F9) to delete the entire field, including the Label.

Add In the Field area, press (F10) to add 1 character at the current marker position.

In the Label area, press (F10) to add a new field at the current marker position. All fields below the marker move down 1 line.

To save the new form, press (F12).

Merge

Press (F6) to merge another Filer file into the current file.

At the prompt, enter the name of the file you want to merge into this file. If the file formats are **exactly** the same, copies of all the records in the (From) file are merged into this file. If duplicate records exist in the 2 files, the extra records are not merged into the file.

Copying a Form to Use in Another File. When you merge 2 files, the formats of the files must be identical. Since 1 character difference makes the files incompatible, make a copy of this file after you set up your format (before you enter any records). This procedure is done at the Main Menu. (See “Main Menu Functions—Copy.”)

Select

Use Select to mark the contents of a record for copying to a document file on diskette. Place the marker over the first field's data to select, then press (F7). Move the marker over the last field to include. All selected data is highlighted. You can now Copy the selected area.

Copy

Press (F8) to copy to a new document file on diskette the field contents of the selected record.

At the prompt, enter the name of the new diskette file you are creating to which you wish to Copy the selected data. The data is copied to the new document file.

Delete

Press (F9) or (DELETE) to delete the record currently displayed.

Add

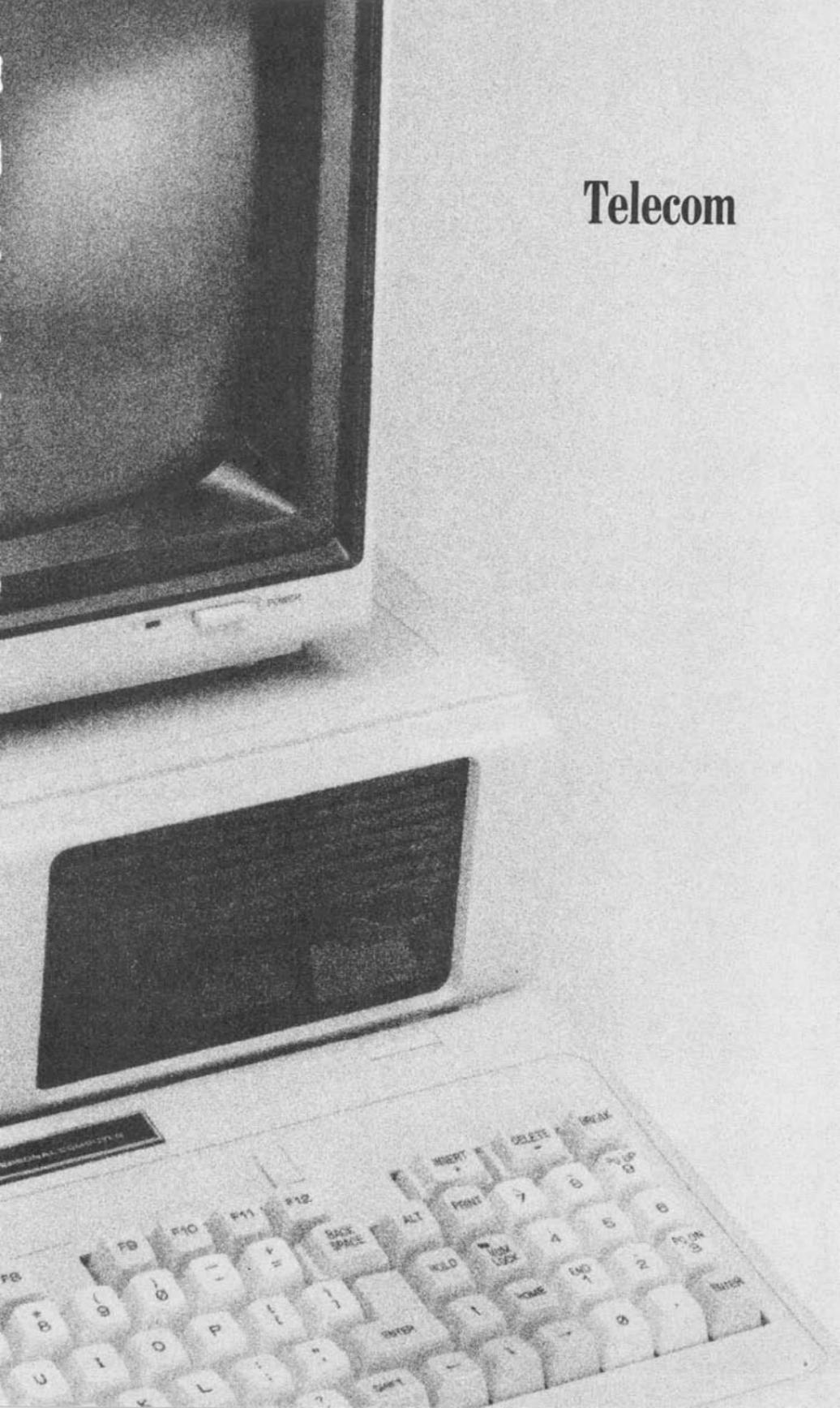
After you set up a format, a blank form is displayed for record entry. (If you are opening an existing file, the first record in the file is displayed. You can edit the record or press (F10) to display a blank form.)

The entry screens are always in the overstrike mode; each character replaces the character at the current marker position. Type the appropriate data for each field. Alphanumeric fields are left-justified. Numeric fields are aligned around the decimal or right-justified if there is no decimal.

Press (ENTER) after each field. Use the arrow keys to move through the data fields as desired.

Press (F10) to add the record and display another blank form. (F12) adds the record and returns to the main Filer screen.

As you add records, they automatically sort according to the primary key field. If you used the Order function in Form, records sort by the key fields first, then the rest of the fields in descending order. Records sort correctly, regardless of the order in which they are added.



Telecom

TELECOM

Telecom is a telecommunications application, designed for communication between the DeskMate computer and another computer running a host program. Telecom can transmit and receive any DeskMate type file. Hookup to the host computer can be over telephone lines or direct.

The Help Screens

There are 8 Help screens for Telecom. These screens contain brief summaries of the functions and ways to use them. Within the Telecom application, press **(ALT) (F1)**. After the first Help screen displays for a function, press **(ENTER)** for the second screen, if any. A Help screen is available for each screen change. At the appropriate screen press **(ALT) (F1)**. **(F12)** returns you to the appropriate Telecom screen.

Setting the Status

The first step in communicating with a host computer is to connect a modem to the DeskMate computer. Refer to your modem's operating instructions for details.

After the modem is properly connected and set, place the marker over Telecom, and press **(ENTER)**. The screen shows the current telecom status settings. The default settings are as shown:

```

TELECOM STATUS                                00/00/00 00:00xx
Current Status:
Autodial Modem . . . . . NO YES
BAUD Rate . . . . . 110 150 300 600 1200 2400 4800 9600
Data Word Length . . . . . 7 BITS 8 BITS
Parity . . . . . EVEN ODD None
Number of Stop Bits . . . . . 1 BIT 2 BITS
XON/XOFF Flow Control . . . . . ON OFF
ASCII Character Filter . . . . . ON OFF
Line Feed Filter . . . . . ON OFF
Echo (Half Duplex) . . . . . ON OFF
Redial (% of Retries) . . . . . 0

FREE RAM: xxxxx

[F1] [F2] [F3] [F4] [F5] [F6] [F7] [F8] [F9] [F10]
Reset Select Autolog Editlog Term Clear Save Print Load Display
  
```

To change a setting, use the arrow keys to move the marker to the correct value, then press **(ENTER)** or **(F2)** (Select). The new setting is highlighted.

If you are using an Autodial Modem, change that status to **YES**. The Define Modem Type screen appears.

Note: If you are directly connecting DeskMate as host to another computer, the Autodial Modem status **must** be **NO**.

The functions for voice dialing, computer dialing, and answer mode are displayed.

Voice Voice Dialing Definition defines the dialing sequence that your modem uses when auto dialing phone numbers in the Phone and Filer applications. Determine the specific sequence for your modem, then press **(F1)** to display the Voice Dialing Definition functions.

Press **(F1)** to send the phone Number to the DeskMate modem.

Press **(F2)** to Receive text from the modem. At the prompt, type the text you expect to receive from the modem, and press **(ENTER)**.

Press **(F3)** to Send text to the modem. At the prompt, type the text to send, and press **(ENTER)**.

Press **(F4)** to Pause during a command sequence. The message **PAUSE:** appears on the screen. Type the number of seconds to pause, and press **(ENTER)**.

Press **(F5)** (WaitNC) to wait for No Carrier detected before continuing. **WAITNC** is displayed.

Press **(F6)** (WaitC) to wait for a Carrier detected before continuing. The message, **WAITC**, appears.

Press **(F7)** to set a new Delay time for transmitting data.

Press **(F9)** to Delete the line under the marker.

Press **(F10)** to Insert a blank line at the current marker position.

Press **(F12)** to save the completed voice dialing sequence and return to the Define Modem Type screen.

Comp Computer Dialing Definition defines the dialing sequence your modem uses when executing auto logon sequences in Terminal. (This is the dialing sequence, not the logon sequence.) Determine the specific dialing sequence for your modem, then press **(F2)** to display the Computer Dialing Definition functions. The Computer Dialing functions are the same as those for Voice Dialing.

Press **(F12)** to save the completed computer dialing sequence and return to the Status screen.

Answer Answer Mode Definition defines the answer sequence your modem uses for answering the remote site when DeskMate is in the Host mode. Determine the specific answer sequence for your modem, then press **(F3)** to display the Answer Mode Definition functions.

Press **(F2)** to Receive text from the remote modem. The prompt **RECEIVE:** appears. Type the text you expect to receive from the modem, and press **(ENTER)**.

Press **(F3)** to Send text to the remote modem. **SEND :** appears on the screen. Type the text to send, and press **(ENTER)**.

Press **(F4)** to Pause during a command sequence. **PAUSE :** appears on the screen. Type the number of seconds to pause, and press **(ENTER)**.

Press **(F5)** (WaitNC) to wait for No Carrier detected before continuing. **WAITNC** appears on the screen.

Press **(F6)** (WaitC) to wait for a Carrier detected before continuing. **WAITC** appears on the screen.

Press **(F7)** to set a new Delay time for the transmission of data.

Press **(F9)** to Delete the line under the marker.

Press **(F10)** to Insert a blank line at the current marker position.

Press **(F12)** to save the completed answer sequence and return to the Define Modem Type screen.

Cancel Cancel Mode Definition defines the sequence certain modems require to cancel auto-answer after exiting a communication function. The functions are similar to Voice, Comp, and Answer. The 300 Baud Modem Board default settings are not necessary for all modems. If your modem does not require these settings, use Delete to erase them from the screen. See "Appendix B" for more detailed information.

Press **(F12)** to return to the Define Modem Type screen.

Press **(F12)** a second time to return to the Status screen.

Refer to the host's requirements for baud rate, word length, parity, and number of stop bits settings. In most cases, you can use the default values for these parameters. Also, check your modem's operating instructions for its maximum baud rate. (The 4800 and 9600 baud rates are for transmission between computers that are directly connected.) If you use XON/OFF Flow Control, transmission to a host computer stops when the host sends an XOFF.

Transmission resumes when the host sends an XON. Telecom sends an XOFF to pause transmission from the host computer when data is coming in too fast for the input buffer. Telecom sends an XON to resume transmission.

The ASCII filter strips out all characters over 80 Hex and control characters except backspace, horizontal tab, line feed, form feed, carriage return, and escape.

Turn the Line Feed Filter On to add a Line Feed (0AH) to all carriage returns (0DH) received. Turn the option off to accept line feeds and carriage returns "as is."

Use the Echo (Half Duplex) option if the host does not echo the text you send. If the host echoes the text (full duplex), turn Off the Echo.

The Redial option lets you enter the number of Retries you want, when you are dialing a computer phone number or executing an automatic logon dialing sequence.

The Telecom Functions

The Telecom status functions are displayed at the bottom of the screen. To select a function, press the appropriate function key.

Reset

Press (F1) to reset the Telecom parameters to the default settings. Current settings are always highlighted.

Select

To Select a setting on the Status screen, position the marker on the correct value and press (F2) (or (ENTER)).

Autolog

Press (F3) to execute an automatic logon sequence. The name of the auto logon file currently in RAM (if any) is displayed at the bottom of the screen. Press (ENTER) to use the current file, or enter the filename for the auto logon you wish to use. If you are using a manual-dial modem, the Telecom status setting is automatically used instead of the Autolog status setting.

If the carrier is detected, Telecom executes the auto logon sequence and goes into the interactive Terminal mode. If no carrier is detected, Telecom waits 5-10 seconds, then redials (retries if the Retries setting is greater than 0).

Editlog

Press **(F4)** to create or edit an automatic logon sequence. The name of the auto logon file currently in RAM (if any) displays at the bottom of the screen. Press **(ENTER)** to use the current file, or enter a filename for the auto logon you wish to create or edit. To include embedded control characters in a logon sequence, precede the command with the character **^**. Special Editlog functions are:

Status Press **(F1)** to place the current status in the autolog sequence. The Status screen is displayed. Set the parameters, and press **(F12)**. A summary of the status appears on the screen.

Call Press **(F2)** to place a dialing sequence in the autolog sequence. Type the dialing sequence, and press **(ENTER)**.

Recv Press **(F3)** to Receive text from the host computer. At the prompt, type the text you expect to receive from the host, and press **(ENTER)**.

Send Press **(F4)** to Send text to the host computer. At the prompt, type the text to send, and press **(ENTER)**.

Pause Press **(F5)** to Pause during a command sequence. Type the number of seconds to pause, and press **(ENTER)**.

Delete Press **(F9)** to Delete the line under the marker.

Insert Press **(F10)** to Insert a blank line at the current marker position.

Press **(F12)** to save the completed auto logon sequence and return to the Status screen.

Terminal

Press **(F5)** to enter the interactive terminal mode. In the interactive terminal mode, characters you type are sent to the host program. Incoming characters are displayed as they are received. If the host program echoes your transmissions, they are displayed as well. (If the host does not echo, you can use the self echo option on the Status screen to display your keyboard input.) Special Terminal functions are:

Buffer Press **(F1)** to open or close the RAM Buffer for capturing the text of the Terminal session. You can examine the text later, using the Display or Print function on the Status screen. When you open the buffer, incoming text appends to the current buffer contents.

Clear Press **(F2)** to Clear the contents of the RAM buffer. All data in the buffer is lost when you use this function.

Recv Press **(F3)** to Receive a file from the host computer. At the prompt, type the filename, and press **(ENTER)**. There are no restrictions on file type.

Note: Use 8-bit transmission, and turn off all filters and character translation options when receiving binary data.

Send Press **(F4)** to Send (transmit) a file to the host computer. At the prompt, type the name of the diskette file, and press **(ENTER)**.

Printer Press **(F5)** to turn on or off the printer option. When the option is on, the text of the Terminal session is sent to the printer as it is received and displayed. (If the ASCII Character Filter is on, only codes 20-7F Hex, 08, 09, 0A, 0C, 0D, and 1B are sent.)

When the printer option is on, transmission is much slower. Also, if you are transmitting at a baud rate greater than the maximum character input rate of your printer, some characters are lost as they are sent to the printer. Check your printer's specifications for its maximum character input rate.

Break Press **(F6)** to generate a Break sequence (250ms null).

Disc Press **(F7)** to Disconnect communication with the host (hang up the phone).

Call Press **(F8)** to auto dial a phone number (for example, an information service number). At the prompt, type the dialing sequence, and press **(ENTER)**.

Press **(F12)** to return to the Status screen.

Clear

Press **(F6)** to clear the RAM buffer. All contents are lost when the buffer is cleared.

Save

Press **(F7)** to save the contents of the RAM buffer on diskette as a document (Text application) file. Enter a filename for the document. The Status screen is displayed after the file is saved.

Print

Press **(F8)** to print the contents of the RAM buffer. The Status screen is displayed when the buffer print is complete.

Load

Press **(F9)** to load a file from diskette to the RAM buffer. Enter the name of the file from which to load. The Status screen displays after the file is loaded.

Display

Press **(F10)** to display the contents of the RAM buffer. Press **(HOLD)** to pause the display. Press any key to continue. Press any key to return to the Status screen after the buffer display is complete.

Calendar



CALENDAR

The Calendar application is an event scheduler. You can use it as a general purpose calendar and planner to replace your desk calendar and date book. It records important events, their dates, and their times so that you can refer to them at any time. Beginning with the current day, Calendar provides you with a week-at-a-glance schedule.

You can search for an event by date, time, and description, print a list of and set the alarm for selected events, combine 2 Calendar files, add and delete events from the calendar, and copy events to another diskette file.

Using Calendar

To create a new file, place the marker over Calendar, press **(ENTER)**, and enter the new filename. A blank Calendar entry/edit screen is displayed.

To open an existing file, place the marker over the appropriate filename, and press **(ENTER)**. The entry/edit screen for that file is displayed.

In the upper left corner of the screen is the Weekly Time Chart. The days of the week (Mon, Tue, and so forth), beginning with the current date (1st, 2nd, and so forth), are displayed down the left side of this area. The times of day, beginning with 12:00 a.m., are displayed across the top.

Any events for the week are marked with asterisks (*) in their corresponding day and time slots. When event times conflict with each other, the conflicting times are marked with an exclamation point (!).

In the upper right corner of the screen is the Month Calendar, similar to a standard desk calendar. The current date is highlighted.

In the bottom section of the screen is the Daily Events Calendar, in which events are entered and displayed. Calendar is always in the overstrike mode. Each character typed replaces the character at the current marker position.

Events are automatically sorted in Date/Time order regardless of the order in which they are added to the file.

With Calendar, you can define sections, or blocks, of events, duplicate them, and save them to a Text file (Copy), Merge them with a Calendar or Alarm file, or Delete them. To define a text block, first Select it. Once the text is selected, immediately Copy or Delete it. If you choose any other function or exit the file, the block is unselected. See "The Calendar Functions" for more information on these functions.

The Help Screens

The 2 Calendar Help screens contain brief summaries of the functions and ways to use them. Within the Calendar application, press **(ALT) (F1)** to view the Help screens. After the first Help screen is displayed, press **(ENTER)** for the second screen. Press **(F12)** to return to the main Calendar screen.

The Arrow Keys

Twelve event lines can be shown on the screen at once. After you complete the twelfth line, the events scroll, or move up line by line, to let you continue. To see a line after it has scrolled off the screen, press **(↑)** until the line appears. Press **(↓)** to return to the last line you were typing or editing.

Use the arrow keys to move the marker a character or line at a time. Press **(SHIFT)** or **(CTRL)** along with the arrow keys to move the marker more rapidly. See Table 6.

Marker Movement Keys			
Key	by itself	with (SHIFT) moves the marker:	with (CTRL)
(→)	one character to the right	to the beginning of the first field to the right	to the next day
(←)	one character to the left	to the beginning of the first field to the left	to the previous day
(↑)	one line up in the current column	to the first entry on the current screen or previous page	to the first Find match or press (HOME)
(↓)	one line down in the current column	to the last entry on the current screen or next page	to the last Find match or press (END)

Table 6.

The Calendar Functions

The Calendar functions available are displayed at the bottom of the screen. To use a function, press the appropriate function key.

Find

Press **(F1)** to search for and Find an event. An event line containing the current (default) Find settings is displayed. (A blank line is displayed if no search criteria have been entered.) The Find functions (Equal, Greater, Less, Reset) are displayed at the bottom of the screen.

To use the default settings, press **(F12)**. All events that match the criteria are found, and the first 12 are displayed. If more than 12 events match the criteria, use the **(↓)** and **(↑)** keys to scroll forward or backward through the events.

If no criteria are entered or if you want to change the search criteria, enter the new search data.

* and ? are wildcard indicators. Type * before or after specific data to be ignored. All characters that come before or after the data (respectively) are disregarded. ? is similar to * except that only one character is disregarded.

Type the search data for each field (including * and ? if you wish), and press **(ENTER)**. Press the appropriate function key **(F1)** (equal to), **(F2)** (greater than or equal to), or **(F3)** (less than or equal to) to set the Find criteria for the information you have typed in that field. (You can choose the function any time the marker is over the appropriate field, before, during, or after you enter the data.)

Press **(F12)** to begin the search. All events that match the criteria are found, and the first 12 are displayed. If more than 12 events match the criteria, use the **(↓)** and **(↑)** keys to scroll forward or backward through the events.

Reset Find Criteria. Press **(F5)** to Reset the Find criteria. All fields are restored to their original settings.

Date

Press **(F2)** to search for and display events that match a certain date. The screen shows:

>Enter Date (mm/dd/yyyy):

Type a new date, and press **(ENTER)**. (Use a 4-digit year.) All events for the date specified are found, and the first 12 displayed. If more than 12 events match the date, use the **(↓)** and **(↑)** keys to scroll forward or backward through the events.

Print

To print a list of all events chosen with the Find function or that match the current date if Find is not used, check the printer setting, and press **(F4)**.

Note: To print only a few events that are displayed on the screen, use the print command, **(SHIFT) (PRINT)**, to print everything currently on the screen. Use the Find, Date, or Select functions or the arrow keys to display the events you want to print.

Alarm

Press **(F5)** to insert selected events into the Alarm file. The alarm for each event is set for 30 minutes prior to the scheduled **Begin** time of the event. If the **Begin** time is **00:00**, no alarm is set for that event. See the Alarm chapter of this manual for more information.

Merge

Press **(F6)** to merge all selected events into another Calendar file or to merge another Calendar file with this event file.

Merging Another File into the Current file. If no events are selected, the screen shows:

From:

Enter the name of the event file to merge into this file. Copies of all events in the **From** file merge into the current file.

Merging Selected Events into Another File. If any events are selected, the screen shows:

To :

Enter the name of the event file into which you wish to merge the selected events. Copies of all selected events in the current file merge into the **To** file.

Select

Use **Select** to define an event or a block of events in order to perform some other operation on it. Position the marker on the first event line you want to select, and press **(F7)**. Use the arrow keys to place the marker over the last event for the block. (See Table 6 for arrow key movement.) All selected events are highlighted as you move the marker.

After you select the events, **Merge**, **Copy**, **Delete**, or place them in the **Alarm** file, as appropriate. If you use any other function or exit the **Calendar** application before you perform one of the above operations, the events are unselected. You can also use **Find** to search for the events you want to select.

Copy

Press **(F8)** to put all selected events into the copy buffer. Press **(F8)** again to **Copy** the contents of the copy buffer to a document file on diskette. The screen shows:

To :

Enter the name of the diskette file to which you wish to copy the events. The events are copied to the document file.

Delete

Press **(F9)** or **(DELETE)** to delete all selected events. The events are immediately deleted. If no events are selected, the event line under the marker is deleted.

Add

Press **F10** to add a new event. A blank event line appears. Type the Date of the event in *mm/dd/yyyy* format, and press **ENTER**.

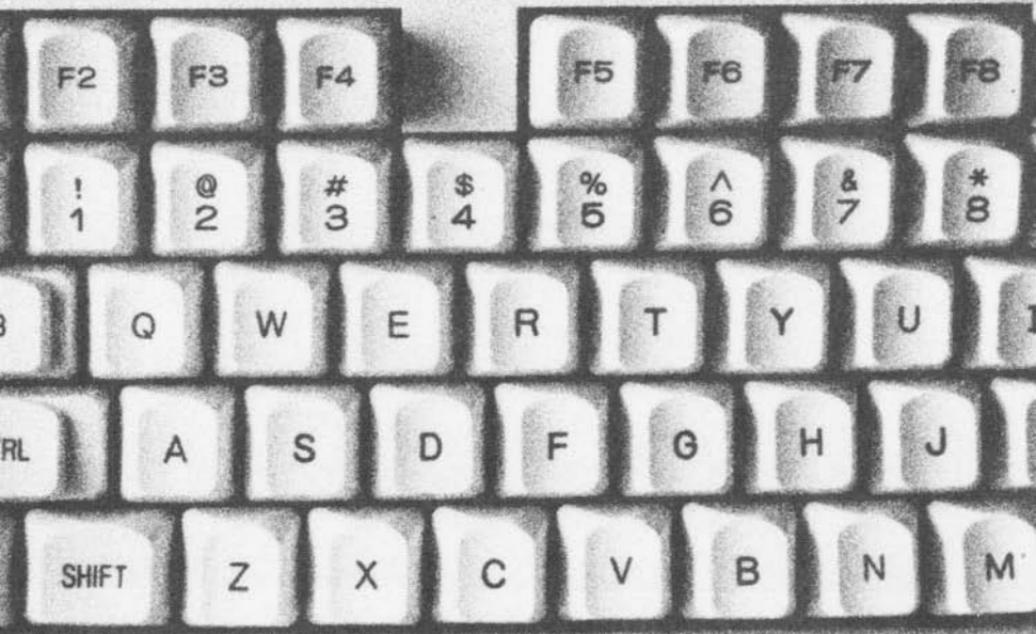
Type the time (12-hour) that the event **B e g i n s**, and press **ENTER**. For example, type **730a** **ENTER** for 7:30 a.m.

Enter the time (12-hour) at which the event **E n d s**, and press **ENTER**.

Enter a **D e s c r i p t i o n** with a maximum of 44 characters for the event, and press **ENTER**. (No uppercase/lowercase distinctions are made when searching for events. *A* and *a* are the same.)

Day Events. If no times are entered for an event, it is considered a *day* event—for the entire day—and it is not put into the Weekly Time Chart.

Mail



MAIL

The Mail application supports a simple message handler. It records important messages along with their dates, times, and authors. You can write or read a message at any time. You can also delete messages or print a list of messages

Using Mail

To open the default Mail file, MESSAGES, place the marker over Mail, and press **(ENTER)**.

To open an existing file, position the marker over the filename, and press **(ENTER)**. A listing of the messages in that file is displayed in ascending date/time order.

Each message line in the listing includes: the author's name, the date and time of the message, and a brief description of the message. Use the arrow keys to scroll through the listing if there are more than 20 messages.

To add a message to a Mail file or create a new Mail file, use the Create function. (See "The Mail Functions" for more information.)

The Help Screen

The Mail Help screen contains brief summaries of the functions and ways to use them. Within the Mail application, press **(ALT) (F1)**. **(F12)** returns you to the Mail screen.

The Arrow Keys

Use the arrow keys to move the marker a character or line at a time. Pressing **(SHIFT)** or **(CTRL)** along with an arrow key moves the marker more rapidly. See Table 7.

Note that on the Text editor screen, the arrow keys are used in exactly the same way as they are in the Text application.

Marker Movement Keys			
Key	by itself	with SHIFT moves the marker:	with CTRL
→	Not used	Not used	to the next message
←	Not used	Not used	to the previous message
↑	one line up in the current column	to the top of the screen	to the beginning of the file
↓	one line down in the current column	to the bottom of the screen	to the end of the file

Table 7.

The Mail Functions

The Mail functions are displayed at the bottom of the message listing screen. To select a function, press the appropriate function key.

Find

Press **F1** to search for a particular message. Enter the author (**F**rom), **D**ate, or **D**escription of the message. All messages that match the search criteria are displayed. Display, print, or delete the messages. Press **F12** to return to the main message listing.

Create

Press **F2** to create a message. The Create Mail screen appears. The **D**ate of the message you create is automatically determined by the current system date and time. Enter your name or the name of the author of the message (**F**rom). Enter a brief **D**escription (32 characters maximum) of the message.

The last prompt is for the person to whom the message is written (**T**o). The name you enter here is the name of the data file in which you want to store this message. If you do not enter a filename, the current file is assumed.

After the message information screen is complete, a Text entry screen is displayed.

Type the message, using the Text functions and editing features. Press **(F12)** to save the message in the current Mail file (the **T** name). The message listing screen returns. The data you entered on the Create Mail screen is displayed in the listing.

The Text editor begins in the Add (insertion) mode. Everything you type is inserted at the current marker position. Any text following the marker shifts to the right 1 space for every character inserted.

The first 22 lines of the editor screen are for typing and editing your message. After you complete the twenty-second line, the screen scrolls, or moves up line by line, to let you continue. To see a line after it scrolls off the screen, press **(I)** until the line appears. Press **(I)** to return to the line you were typing or editing.

The Text functions are displayed at the bottom of the screen. Use any of the Text functions for your message. See "The Text Functions" in the chapter on Text for more information.

Press **(F12)** to save the message and return to the message listing screen for the current file.

Display

With the marker on the listing of the message you want to display, press **(F3)**. The Text entry/edit screen for that message is displayed. Press **(F12)** to return to the listing screen, and press **(Y)** or **(N)** to indicate whether or not to save changes. Press **(SHIFT) (F12)** to return without saving changes.

Note that after saving an edited message, the edited version is saved as a separate message. To eliminate the old version, use the Delete function.

Print

Press **(F4)** to print the message. Make sure the printer settings are properly set in the Printer subfunction before you print.

Note: You can also print a message at the Text editor screen, using the Text Print function. (See “The Text Functions – Print” in the Text chapter.)

To print part of a message, use the print command, **(SHIFT) (PRINT)**, at the Display screen to print everything currently on the screen.

Delete

Place the marker over a message listing, and press **(F9)** or **(DELETE)**. The message is immediately deleted.

Appendices



BACKING UP YOUR DISKETTE

One-Drive System

If you have only 1 disk drive, follow these steps to make a backup of your DeskMate diskette.

1. Turn on the computer.
2. Insert the MS-DOS/BASIC diskette into the drive.
3. At the system prompt, **A>**, type: **Format** (**ENTER**). The following prompt appears:

Insert new diskette for drive A:
and strike any key when ready

4. Remove your MS-DOS/BASIC diskette, and insert a blank diskette into the drive.
5. Press any key to begin. A series of dashes appears on the screen. These dashes change to dots as your diskette is *formatted*.
6. When the formatting is complete, a prompt is displayed:

Format another (Y/N)?
7. Press (**Y**) to continue formatting as many diskettes as you need. When the last diskette is formatted, press (**N**) at the prompt. The system prompt reappears.
8. Reinsert the MS-DOS/BASIC diskette, and type: **Diskcopy** (**ENTER**).
9. DISKCOPY prompts you to insert the formatted *target diskette* into Drive A. Insert the newly formatted diskette and press any key.
10. You are prompted to insert the *source diskette* (the diskette you wish to copy). Remove the target diskette, insert the DeskMate diskette, and press any key to continue. During DISKCOPY, you are prompted to switch the diskettes several times.

11. When DISKCOPY is completed, the following prompt is displayed:

```
Copy Complete
Copy another (Y/N)?
```

12. Press **(N)** to end the session or **(Y)** to make more backups.

Two-Drive System

If you have a system with 2 disk drives, the backup procedure for the DeskMate diskette is much easier.

1. Turn on the computer.
2. Insert your MS-DOS/BASIC diskette into Drive A and your target diskette (your blank diskette) into Drive B.
3. At the system prompt, **A>**, type: **Format B: (ENTER)**.
4. Press any key to begin. When completed, the following prompt appears:

```
Format another (Y/N)?
```

You now have a formatted diskette which can be used as a *data diskette* in Drive B.

5. Select **(Y)** to format more diskettes or **(N)** to end the formatting procedure and return to the system prompt.
6. At the system prompt, type: **Diskcopy A: B: (ENTER)**. The following prompt is displayed:

```
Insert source diskette into Drive A:
Insert formatted target diskette
into Drive B:
Press any key when ready
```

7. Insert the source diskette (the diskette you wish to copy) into Drive A. With the target diskette in Drive B, press any key to begin. When the backup is complete, the next prompt appears:

```
Copy Complete
Copy another (Y/N)?
```

8. Press **(Y)** to make more copies or **(N)** to end the session and return to the system prompt.

Appendix B

MODEM INFORMATION

The following are the modem definitions for the Modem II, DC-1200, and DC-2212.

Note: If you are using a rotary phone, omit **T** wherever it appears in the definition for your modem.

Modem II

Computer Dialing		Voice Dialing		Answer Mode	
Press:	Enter:	Press:	Enter:	Press:	Enter:
DELAY	5	DELAY	5	DELAY	5
SEND	**ODT	SEND	**ODT		
NUMBER		NUMBER			
SEND	X	SEND	X	SEND	**C
RECEIVE	X	RECEIVE	X	RECEIVE	C
WAITNC		WAITNC			
WAITC					

DC-1200

Computer Dialing		Voice Dialing		Answer Mode	
Press:	Enter:	Press:	Enter:	Press:	Enter:
DELAY	5	Not applicable		DELAY	5
SEND	**ODT			No definition required—always in answer mode	
NUMBER					
SEND	X				
RECEIVE	ON LINE				

DC-2212

Computer Dialing		Voice Dialing		Answer Mode	
Press:	Enter:	Press:	Enter:	Press:	Enter:
DELAY	2	DELAY	2	DELAY	2
SEND	*C*.G@^ \DT	SEND	*C*.G@^ \DT	SEND	*C*.G@^ \AX
RECEIVE	T	RECEIVE	T	RECEIVE	AUTO ANSWER
NUMBER		NUMBER			
SEND	X	SEND	PPPX		
RECEIVE	ON LINE ORIG	RECEIVE	X		
		PAUSE	4		
		SEND	*		
		RECEIVE	DISCONNECT		

300 Baud Modem Board (Default Settings)

Computer Dialing		Voice Dialing		Answer Mode	
Press:	Enter:	Press:	Enter:	Press:	Enter:
DELAY	2	DELAY	2	DELAY	2
SEND	*C*MG@^ \DT	SEND	*C*MG@^ \DT	SEND	*C*M@^ \AX
RECEIVE	T	RECEIVE	T	RECEIVE	X
NUMBER		NUMBER			
SEND	X	SEND	PPX		
RECEIVE	X	RECEIVE	X		
		PAUSE	2		
		SEND	*		

(If you are using rotary dialing, replace each T with an R.)

INSTALLING MS-DOS ONTO YOUR DeskMate DISKETTE

To allow for more data space, Tandy 1000 applications do not have MS-DOS installed. Therefore, your DeskMate diskette is not a bootable diskette. You can boot (start up) your system with your MS-DOS diskette and then insert the DeskMate diskette to execute the program. For extra convenience, you can make a bootable DeskMate diskette by following these instructions.

Note: This procedure reduces usable disk space from 52224 bytes to 12288 bytes.

Do not use this procedure if your printer requires LPINST. (See "Printer Configuration Instructions" in your tutorial.) In this case, you must boot your system using the MS-DOS diskette.

If you want to use the tutorial, please do so **before** you install MS-DOS on your DeskMate diskette. The installation, though making your diskette bootable, does not leave room for data files needed for your use during the tutorial.

One-Drive System

1. With the Computer turned on, insert an MS-DOS system diskette in the drive, and press the RESET button. The system prompt, **A>**, is displayed once you answer the date and time prompts.
2. Type **format /s** (ENTER). The following message appears:

```
Insert new diskette for drive A:  
and strike any key when ready
```

3. Remove the system diskette, and insert a blank diskette into the drive.
4. Press any key to begin. A series of dashes appears on the screen. These dashes change to dots as the diskette is formatted. When the diskette is formatted, you are asked:

```
Format another (Y/N)?
```

5. Press (Y) to continue formatting diskettes. Press (N) when the last diskette is formatted. The system prompt reappears.

6. Insert the original DeskMate master diskette that came with your computer. (Do not use a copy that already contains data you created.)
7. Type **copy *.exe b: (ENTER)**.

The following prompt appears:

```
Insert new diskette for drive B:  
and strike any key when ready.
```

8. Insert the newly formatted diskette, and press any key. You are asked to switch diskettes several times. (Use the DeskMate diskette when you are prompted to insert the diskette for Drive A, and use the newly formatted diskette when you are prompted for the diskette for Drive B.)
9. With the original DeskMate diskette in Drive A, type **copy *.hlp b: (ENTER)**.

As before, you are asked to insert the formatted diskette and strike any key. Do so, and when asked to switch diskettes, follow the instructions on the screen. The system prompt reappears when the transfer is complete.
10. Again, with the DeskMate diskette in Drive A, type: **copy *.tws b: (ENTER)**. Insert the formatted diskette, and press any key. Switch diskettes as instructed by the screen messages.

When you are finished, the system prompt reappears. Now, you have a bootable DeskMate diskette.

Two-Drive System

1. With the computer turned on, insert an MS-DOS system diskette in Drive A (the lower drive), and press the RESET button. The system prompt, **A>**, is displayed once you answer the date and time prompts.
2. Type **format b: /s (ENTER)**. The following message appears:

```
Insert new diskette for drive B:  
and strike any key when ready
```

3. Insert a blank diskette in Drive B (the upper drive), and press any key to begin. **Format another (Y/N)?** appears when the diskette is formatted. Press **(Y)** to continue formatting diskettes. Press **(N)** when the last diskette is formatted. The system prompt reappears.
4. Insert your original DeskMate master diskette in Drive A (do not use a copy that already contains data you created), and type **copy *.exe b: (ENTER)**.
5. When the system prompt reappears, type **copy *.hlp b: (ENTER)**. When the transfer of .hlp files is complete, the system prompt reappears.
6. Type **copy *.tws b: (ENTER)**.

When you are finished, the system prompt reappears. Now, you have a bootable DeskMate diskette.

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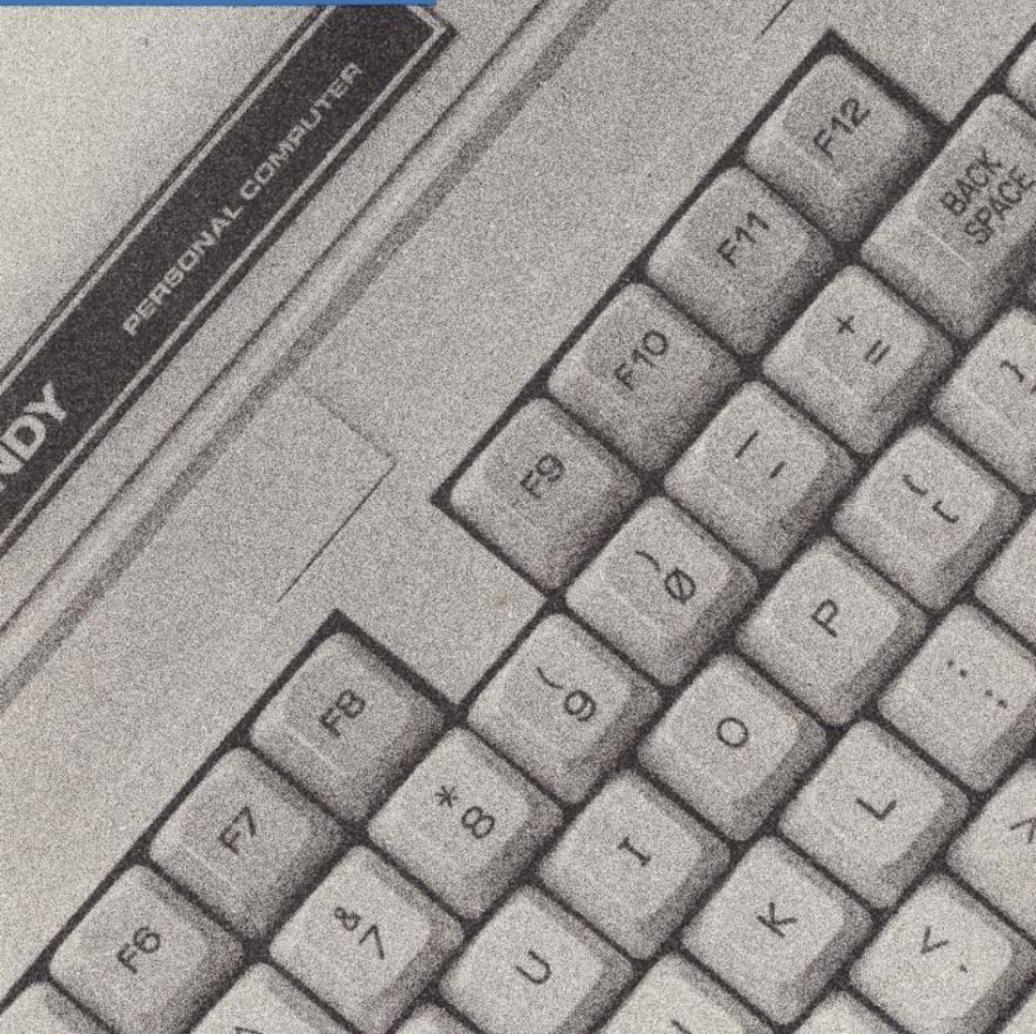
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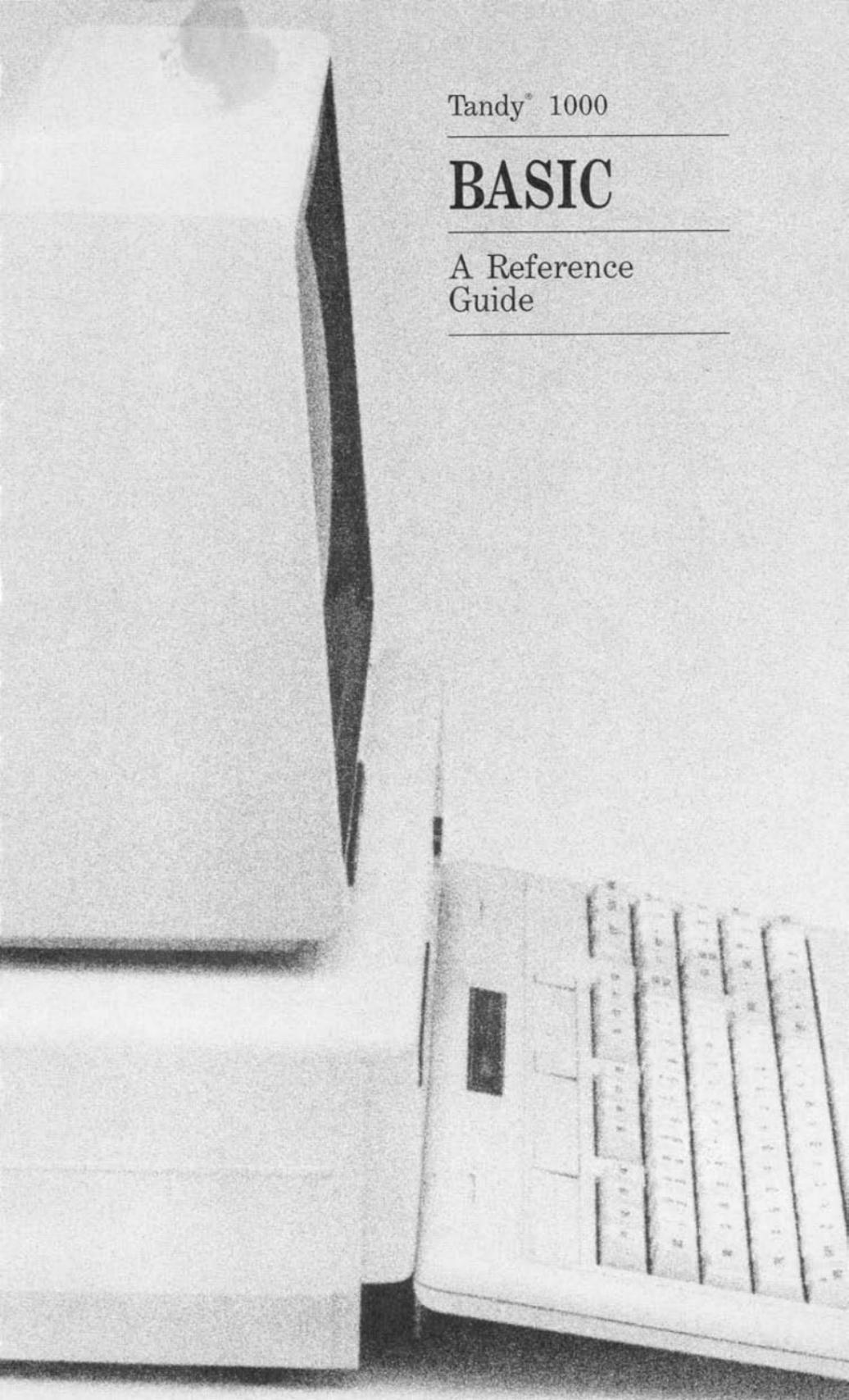
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A Guide to the Tandy 1000

- Introduction to the Tandy 1000/
A Tutorial to DeskMate™
- DeskMate, A Reference Manual
- BASIC, A Reference Guide





Tandy® 1000

BASIC

A Reference
Guide

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BASIC

This guide outlines BASIC for MS™-DOS. It assumes that you are familiar with the BASIC language. For a full explanation of the concepts and commands referred to here, see your Radio Shack dealer for the *BASIC Reference Manual*, (Cat. No. 25-1502). For a tutorial on how to use BASIC, Radio Shack carries the following book:

Learning BASIC for the Tandy 1000/2000
by David Lien, Cat. No. 25-1500

Also see your local bookstore for tutorial books on BASIC.

Notations

The following notations are used throughout this guide:

CAPITALS	Material you enter exactly as it appears.
<i>italics</i>	Words, letters, characters, or values you put in command lines from a set of acceptable entries. Elsewhere, italics are used for emphasis.
. . . (ellipsis)	Items preceding the ellipsis may be repeated.
[]	Items enclosed in brackets are optional.
&Hnnnn	nnnn is a hexadecimal number.
&Onnnnn	nnnnn is an octal number.
(KEYNAME)	A key on your keyboard.
b	Is used to indicate a space (ASCII Code 32) in text when spaces are an important part of a command or statement.

Loading BASIC

BASIC is supplied with your computer. To use BASIC, first load MS-DOS. To do so, turn on your computer and insert the MS-DOS/BASIC diskette into Drive A; then press the reset button.

Enter the date and time as prompted. You can bypass these prompts by pressing (ENTER); however, some BASIC statements make use of the system date and time. When the display shows the prompt:

A>

BASIC can be loaded using the following format. Note that all parameters are optional:

BASIC [*pathname*][<*input-file*][>[>]*output-file*][/*F*:# of files]
[/*M*:highest memory location, maximum block size][/*C*:buffer size][/*S*:record length][/*D*][/*I*]

For example:

BASIC

BASIC is loaded and 3 data files are reserved for your use.

BASIC MYFILE

BASIC is loaded. The program specified by MYFILE is loaded and executed.

BASIC MYFILE >DATA.IN

BASIC is loaded. The program specified by MYFILE is loaded and receives input from the file specified by DATA.IN rather than from the keyboard.

BASIC MYFILE <DATA.IN >DATA.OUT

BASIC and the program specified by MYFILE are loaded. BASIC now receives input from the file specified by DATA.IN. Output is directed to the file DATA.OUT, instead of the video display. Because 1 greater-than sign is used before the output-file, the output-file is overwritten. If 2 greater-than signs are used, the output is appended to the output-file.

BASIC /F:10 /I

BASIC is loaded. A maximum of 10 data files can be open at one time. /I, which tells BASIC not to dynamically allocate space during file operations, is required when using the /F option. BASIC reserves 6 files for your use (4 are reserved for internal use.) If the number of data files is not set, BASIC reserves 3 for your use.

BASIC /S:256 /I

BASIC is loaded. The maximum direct access record size is set at 256 bytes. If not defined, /S defaults to 128 bytes. /I, which tells BASIC not to dynamically allocate space during file operations, is required with the /S option.

BASIC /C:128

BASIC is loaded. The size of the receive buffer for RS232 is set to 128 bytes. If you omit /C, the buffer is set to 256 bytes. The transmit buffer is always 128 bytes.

BASIC /M:32000,2048

BASIC is loaded with a reserved memory of 32768 bytes (2048 x 16). The lower 32000 bytes are used for BASIC with the 768 bytes above memory location 32000 reserved for assembly-language routines. If the /M is omitted, the system reserves 64K bytes for BASIC. The *maximum block size* parameter must be set if you plan to use the SHELL statement.

BASIC /D

BASIC, including the Double Precision Transcendental math package, is loaded.

Filenames

Filenames (including program names) consist of 1-8 characters, beginning with an alpha character. Legal characters are the letters A-Z, the symbols (){}@#\$\$%&!-_'`^~ and the numbers 0-9. Examples of filenames are: DATAFILE, Program1, Acct-1, r'MAIL, A\$b#C!.

Filenames can also contain an extension. Extensions consist of a period (.), followed by 1-3 characters. Legal extension characters are the same as for filenames. Examples of filenames with extensions are DATAFILE.dat, Program1.BAS, MAIL.J27, A\$b#C!.SSS.

To save or load files using other than the current directory and the current drive, you must use pathnames. Pathnames can include the drive, directory, the filename and filename extension.

Loading and Running BASIC Programs

To load a BASIC program for execution or examination, type:

```
LOAD "MYFILE" (ENTER)
```

where MYFILE is the program to be loaded into memory. Because a path is not given, BASIC looks for MYFILE in the current directory.

Add **,R** after the filename or pathname to cause the file to execute automatically after loading. Using RUN instead of LOAD also causes a file to execute automatically after loading.

Saving BASIC Programs to Disk

The syntax for saving a BASIC program is:

```
SAVE "MYFILE" (ENTER)
```

saves the program in memory as MYFILE. Because a path is not specified, BASIC saves MYFILE in the current directory.

You can specify the drive and directory in which to save a file. For example, to name a file *memos.bas* and save it in the WORK directory on Drive B, type:

```
SAVE "B:\WORK\memos.bas" (ENTER)
```

Typing and Editing BASIC Programs

When BASIC displays the Ok prompt, you can type in program lines or commands. When you press the (ENTER) key, BASIC looks at the first character of a line. If it is a digit, BASIC stores it in memory as a program line.

If the first character is not a digit, BASIC tries to execute the line as a command. For instance, type the following:

```
MILES=390 (ENTER)  
GALLON=15 (ENTER)  
PRINT MILES/GALLON (ENTER)
```

BASIC executes each command as it is entered.

Typing a Program

Each line must be preceded by a line number. At the Ok prompt, type:

```
10 CLS
```

When the first line is completed, press **(ENTER)**.

Type the second line with its line number:

```
20 PRINT "COMPUTERS STORE CHARACTERS  
IN STRINGS" (ENTER)
```

Type the rest of the program in the same manner. It should look like this:

```
10 CLS  
20 PRINT "COMPUTERS STORE CHARACTERS  
IN STRINGS"  
30 INPUT "TYPE YOUR FIRST NAME -  
PRESS <ENTER>"; FIRSTNAME$  
40 INPUT "TYPE YOUR SECOND NAME -  
PRESS <ENTER>"; LASTNAME$  
50 PRINT "STRINGS CAN BE JOINED  
TOGETHER LIKE THIS," FIRSTNAME$ " "  
LASTNAME$
```

To execute this or any other BASIC program, at the Ok prompt, type RUN and press **(ENTER)**.

Editing the Program

There are 2 methods to edit BASIC program lines:

Method 1

You can retype the entire line. For example, to add the word CAN to the line, type:

```
20 PRINT "COMPUTERS CAN STORE  
CHARACTERS IN STRINGS" (ENTER)
```

Method 2

Use BASIC's special function keys for editing lines. A description of these keys and their functions follows.

If the line to edit is on the screen, you can use the arrow keys to move the cursor to the position at which you are going to make the changes. If the line is not displayed, you can edit it by typing:

EDIT *line* (ENTER)

where *line* is the number of the line to edit. After you make the changes, press (ENTER) to store them.

Special Function Keys

- | | |
|--------------------------------|---|
| (CAPS) | switches to uppercase or uppercase/lowercase mode. |
| (SPACEBAR) | changes the current character to a blank and advances the cursor 1 position to the right. |
| (BACKSPACE)
or (CTRL) (H) | backspaces the cursor, erasing the first character to the left. All characters to the right move left 1 position. |
| (BREAK) or
(CTRL) (C) | interrupts line entry and starts over with a new line. Any changes previously made to the line are not saved. |
| (ENTER) or
(CTRL) (M) | ends current line. BASIC reads the line. |
| (ESC) or
(CTRL) (U) | erases the entire line from the screen, but not from memory. |
| (CTRL) (L) or
(CTRL) (HOME) | clears the screen and positions the cursor at the first position in Row 1. |
| (CTRL) (Z) | clears the screen from the current cursor position to the end of the screen. |
| (DELETE) | deletes the character at the cursor position and moves all remaining characters 1 position to the left. |

INSERT or
CTRL R

turns on the insert mode if it is off; or off if it is on. The insert mode lets you add characters to the line at the cursor position.

HOME or
CTRL K

moves the cursor to the first position in Row 1.

END or
CTRL N

moves the cursor to the line end.

CTRL END
or **CTRL E**

deletes all characters from the current cursor position to the end of the line.

TAB or
CTRL I

advances the cursor to the next tab position. Tab positions are set at every 8 characters.

← or
CTRL J

moves the cursor 1 position to the left.

→ or
CTRL /

moves the cursor 1 position to the right.

↑ or
CTRL 6

moves the cursor up 1 row to the character above the current cursor position.

↓ or
CTRL ←

moves the cursor down 1 row to the character below the current cursor position.

CTRL ←
or **CTRL B**

moves the cursor left to the first character in the preceding word.

CTRL →
or **CTRL F**

moves the cursor right to the first character in the next word.

CTRL G

rings the bell at the terminal.

CTRL J

issues a linefeed. This moves the cursor to the next line of the display without executing or storing the line.

Special Keys During Program Control

- (HOLD)** pauses execution. Press **(HOLD)** again to continue.
- (BREAK)** terminates execution and returns you to BASIC's prompt.
- (ENTER)** or **(CTRL) (M)** signifies the end of data entry. When a program or command prompts for data entry, press **(ENTER)** to end your response.

Function Key Settings

Your computer's function keys (F1-F12) are used to enter some keywords or commands. This chart shows the key assignments. See the KEY statement to display or reassign these keys.

- F1 LIST
- F2 RUN **(ENTER)**
- F3 LOAD“
- F4 SAVE“
- F5 CONT **(ENTER)**
- F6 ,“LPT1:” **(ENTER)**
- F7 TRON **(ENTER)**
- F8 TROFF **(ENTER)**
- F9 KEY
- F10 SCREEN 0,0,0 **(ENTER)**
- F11 (none)
- F12 (none)

Keywords Using The **(ALT)** Key

The **(ALT)** key provides a quick way to type BASIC keywords. To use **(ALT)** with the above keywords, press and hold down the **(ALT)** key while pressing the associated letter.

- | | | |
|----------|----------|----------|
| A AUTO | J (none) | S SCREEN |
| B BSAVE | K KEY | T THEN |
| C COLOR | L LOCATE | U USING |
| D DELETE | M MOTOR* | V VAL |
| E ELSE | N NEXT | W WIDTH |
| F FOR | O OPEN | X XOR |
| G GOTO | P PRINT | Y (none) |
| H HEX\$ | Q (none) | Z (none) |
| I INPUT | R RUN | |

* MOTOR is a reserved word, but not recognized in this implementation of BASIC.

Data

Data, in the form of numbers, characters, or symbols, is information on which BASIC performs its operations. Data can be of 2 forms, string and numeric. As well, both string and numeric data can be of 2 types, variable and constant.

String Data

String data is a sequence of ASCII characters, graphics or non-ASCII symbols. The maximum length for a string is 255 characters.

Strings can contain either alpha or numeric characters. For example: "DOCUMENT 23", "LEVEL 13".

The dollar sign (\$) is used to indicate a variable string name. For example:

```
NAME$ = "JOE"
```

When used in a program, strings are enclosed in quotation marks. When used in response to a prompt, strings do not require quotation marks.

Numeric Data

Numeric data consists of positive and negative numbers, which BASIC divides into 5 groups:

- **Integers** are whole numbers (without decimal points) in the range -32768 to +32767.
- **Single precision numbers** can be a maximum of 7 digits in the range 10^{-38} to 10^{+38} . For example 10001, -200034, 123.456. If single precision numbers are more than 7 digits, they are displayed in the exponential form using the E form. For example: 1.756E5, .98E8, 104E-7.
- **Double precision numbers** can be a maximum of 16 digits and have a decimal point. They have the same range as single precision numbers. If they are more than 16 digits they are displayed in exponential format, using the D form. For example: 8.00100708D12, -6.7765499824D16.
- **Hexadecimal numbers** represent a numeric system to the base of 16 instead of 10. They can be 1 to 4 digits and are preceded by &H. The hexadecimal numbers are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F. For example: &H04, &HEE, &H4F, &H22.

- **Octal** numbers represent a numeric system to the base of 8. They can be 1 to 6 digits and are preceded by &O or &. The octal numbers are: 0, 1, 2, 3, 4, 5, 6, 7. For example: &O7, &O123, &O0055, &66.

Numbering Systems

This chart shows the relationship of decimal, hexadecimal and octal numbers. The relationship of binary (base 2) numbers is also shown. This information is useful in graphic modes.

Decimal	Hexadecimal	Octal	Binary
0	0	0	0000
1	1	1	0001
2	2	2	0010
3	3	3	0011
4	4	4	0100
5	5	5	0101
6	6	6	0110
7	7	7	0111
8	8	10	1000
9	9	11	1001
10	A	12	1010
11	B	13	1011
12	C	14	1100
13	D	15	1101
14	E	16	1110
15	F	17	1111

Numeric Constants

Numeric constants are values input to a program that are not subject to change. They can be in any of the 5 forms previously described. Notice that numeric constants:

- cannot contain punctuation. For example 100,000 is not acceptable but 100000 is acceptable.
- are evaluated when entered. If they are out of range for their type, an error message is immediately returned.
- are of several types. *Type* can be indicated by the use of symbols following the number. The symbols are:
 - ! declares a single precision number. For example, 12.345678901234! is stored by BASIC as 12.34568.

- E declares a single precision exponential number. For example, the number 1.2E5 is stored as 120000.
- # declares a double precision number. However, single precision constants are not expanded by BASIC. For example, the number 1.5# is stored as 1.5 even though it is treated as a double precision number.
- D declares the number a double precision exponential number. For example, the number 1.2D2 is stored as 120.

Numeric Variables

BASIC classifies all numeric variables as single precision. You can change this classification by appending one of the following symbols to the variable name:

- % declares an integer variable. Examples are I%, FT%, COUNTER%.
- ! declares a single precision variable. Examples are F!, NM!, BALANCE!.
- # declares a double precision variable. Examples are S#, AD#, TOTAL#.

The inclusion of one of these symbols creates a new and distinct variable name. For example, A%, A!, and A# can each represent a separate value.

Operators

An operator is a symbol or word that signifies an action to be performed on the associated data. Data items are called operands. The 4 types of operators are: arithmetic, string, relational, and logical.

Arithmetic Operators

- ^ Exponentiation. Calculates the power of a number. For example, 2^3 is 8 (2 to the power of 3 is the same as 2*2*2).
- Negation or Unary Minus. Makes a number negative. For example, -10 is "negative ten."
- *, / Multiplication, Division. For example, 3*3 is 9, and 10/5 is 2.

- \ Integer Division. BASIC rounds both operands to integers and truncates the result to an integer. Integer division is faster than standard division. For example, $10 \setminus 4$ is 2.
- MOD Modulus Arithmetic. BASIC performs integer division as described above and returns the *remainder* as an integer value. For example, $10 \text{ MOD } 3$ results in 1.
- + , - Addition, Subtraction. For example, $2 + 9$ is 11, and $15 - 8$ is 7.

When BASIC evaluates an arithmetic expression, all operands and the result are converted to the same degree of precision as the most precise operand. The arithmetic operators are listed in order of precedence, that is, the order in which BASIC executes them if 1 or more operators are in the same statement.

String Operator

The only string operator is the plus sign (+). It appends 1 string to another. For example:

```
PRINT "JOSEPH " + "P. " + "RAWLINGS"
```

prints JOSEPH P. RAWLINGS.

Relational Operators

The relational operators and their meanings are, in order of precedence:

- = Equal. Both operands are equal.
- < Less Than. The first operand is less than or precedes the second operand.
- > Greater Than. The first operand is greater than or follows the second operand.
- >< or <> Inequality. The operands are not equal.
- <= or =< Less Than or Equal To. The first operand is less than (precedes) or is equal to the second operand.
- >= or => Greater Than or Equal To. The first operand is greater than (follows) or is equal to the second operand.

With numeric data, relational operators compare 2 pieces of data and the result is either *true* or *false*. If the relationship is true, BASIC returns -1. If the relationship is false, BASIC returns 0 (zero).

Relational operators are usually used within an IF/THEN statement. For example, the command:

```
IF A = 1 THEN PRINT "CORRECT"
```

displays the word CORRECT if the variable A is equal to 1.

With string data, relational operators compare character by character. When 2 characters do not match, BASIC checks to see which character has the lower ASCII value. The character with the lower value comes before the word with the higher value. Leading blanks are significant in string comparisons. The ASCII code for blank is 32.

```
PRINT "A" < "B"
```

compares the ASCII value of the 2 strings. The ASCII value for A is 65, and the ASCII value for B is 66. Because 65 is less than 66, BASIC returns -1.

Logical Operators

Logical operators, also known as Boolean operators, make comparisons of a set of true/false values and return a true or false result. This table shows the result for each logical operator given the described true/false values. True is 1 and false is \emptyset .

Operator	Meaning of Operation	First Operand	Second Operand	Result
NOT	When the result is the opposite of the operand.	1 \emptyset		\emptyset 1
AND	When both values are true, the result is true. Otherwise, the result is false	1 1 \emptyset \emptyset	1 \emptyset 1 \emptyset	1 \emptyset \emptyset \emptyset
OR	When both values are false, the result is false. Otherwise, the result is true.	1 1 \emptyset \emptyset	1 \emptyset 1 \emptyset	1 1 1 \emptyset
XOR	When one of the values is true, the result is true. Otherwise, the result is false.	1 1 \emptyset \emptyset	1 \emptyset 1 \emptyset	\emptyset 1 1 \emptyset
EQV	When both values are true or both values are false, the result is true.	1 1 \emptyset \emptyset	1 \emptyset 1 \emptyset	1 \emptyset \emptyset 1
IMP	The result is true unless the first value is true and the second is false.	1 1 \emptyset \emptyset	1 \emptyset 1 \emptyset	1 \emptyset 1 1

Hierarchy of Operators

This list shows the operators in the order that BASIC performs the operations in a statement. Remember, BASIC evaluates statements from left to right. Operators with the same level of hierarchy are shown on the same line.

^
unary -
* /
\
MOD
+ -
< > = <= >= <>
NOT
AND
OR XOR
EQV
IMP

Color and Graphics

Your computer has a wide range of color and graphics options. Color, as used in these references, indicates a color in the current screen mode.

Resolution

You have the option of 3 resolution screens, low, medium and high, as noted below. The horizontal length or points (x axis) is given first followed by the vertical length (y axis).

Low resolution	160 x 200 points
Medium resolution	320 x 200 points
High resolution	640 x 200 points

The aspect ratio is a comparison of the number of points per inch vertically to the number of points per inch horizontally. This ratio is calculated by the formula:

$$\text{aspect ratio} = \frac{\text{vertical points}}{\text{area height}} \cdot \frac{\text{horizontal points}}{\text{area width}}$$

Colors

BASIC has three color sets: a 2 color set, a 4 color set and a 16 color set. They function as follows:

Color Set Attributes

2 colors Black and white. The background is black and the foreground is white. These colors cannot be changed.

4 colors One set or *palette* of 4 colors. Each color is assigned a number. The numbers and their corresponding colors are:

No.	Color
1	Cyan
2	Magenta
3	White

Screen Mode 1, however, has 2 palettes. The two sets and their corresponding numbers are:

No.	Palette 0	Palette 1
1	green	cyan
2	red	magenta
3	brown	white

Color 0 is the current background color and is initially set to black. You may change the background color to any of the colors in the 16 Color Set.

16 colors One palette with 16 colors. Each color is numbered as shown below:

No.	Color	No.	Color
0	black	8	dark gray
1	blue	9	light blue
2	green	10	light green
3	cyan	11	light cyan
4	red	12	light red
5	magenta	13	light magenta
6	brown	14	yellow
7	gray	15	white

Video Pages

BASIC sets aside memory for the video display. The amount of memory necessary depends on the screen mode you choose. BASIC initially sets 16K aside for video memory. You can change this with the CLEAR statement.

Video memory is divided into pages. You can store information to one page while displaying another. The amount of memory required for each SCREEN mode is detailed in the following section.

Screen Modes

The color set and screen resolution are set using the SCREEN command.

There are 6 SCREEN modes as follows:

Screen Mode 0 (Text Mode)

Color Set:	16
Graphics Resolution:	not available
Text Width:	40 or 80
Video Page Size	If WIDTH = 40, 2048 bytes If WIDTH = 80, 4096 bytes

Screen Mode 1

Color Set:	4 (2 palettes)
Graphics Resolution:	medium resolution 320 x 200
Aspect Ratio:	5/6
Text Width:	40
Video Page Size	16384 bytes

Screen Mode 2

Color Set:	2
Graphics Resolution:	high resolution 640 x 200
Aspect Ratio:	5/12
Text Width:	80
Video Page Size	16384 bytes

Screen Mode 3

Color Set: 16
Graphics Resolution: low resolution
160 x 200
Aspect Ratio: 5/3
Text Width: 20
Video Page Size 16384 bytes

Screen Mode 4

Color Set: 4
Graphics Resolution: medium resolution
320 x 200
Aspect Ratio: 5/6
Text Width: 40
Video Page Size 16384 bytes

Screen Mode 5

Color Set: 16
Graphics Resolution: medium resolution
320 x 200
Aspect Ratio: 5/6
Text Width: 40
Video Page Size 32768 bytes

Screen Mode 6

Color Set: 4
Graphics Resolution: high resolution
640 x 200
Aspect Ratio: 5/12
Text Width: 80
Video Page Size 32768 bytes

Keywords

ABS(*number*)

Returns the absolute value of *number*.

```
PRINT ABS(-44)      X = ABS(Y)
```

ASC(*string*)

Returns the ASCII code (a decimal number) for the first character of *string*.

```
PRINT ASC("A")     N=ASC(B$)
```

ATN(*number*)

ATN returns arctangent of number.

```
PRINT ATN(7)       X = ATN(Y/3) * 57.29578
```

AUTO [*line*],[*increment*]

Automatically generates a line number when you press **ENTER**. If *line* already exists in memory, BASIC displays an asterisk after the number. To turn off AUTO, press **BREAK**.

Line is the starting line number. Default = Line 10.

Increment is the increment to use when generating line numbers. Default = 10.

```
AUTO                AUTO 100,50
```

BEEP [*switch*]

Sounds the speaker at 800 Hz for ¼ second.

Use BEEP with SOUND to direct sound to the computer's speaker or an external speaker (or both).

BEEP ON: SOUND ON

directs sound to both speakers

BEEP OFF: SOUND OFF

turns off sound to both speakers

BEEP ON: SOUND OFF

directs sound to the internal speaker only

BEEP OFF: SOUND ON

directs sound to external speaker only

IF X > 20 THEN BEEP

BLOAD *pathname*[,*offset*]

Loads a memory image file into memory.

Offset is the number of bytes into the current segment where BASIC loads the image. Must be in the range 0 to 65535. Default = value set by BSAVE.

BLOAD "prog1.bas" BLOAD "prog2.bas", 0

BSAVE *pathname,offset,length*

Saves the contents of an area of memory as a disk file (memory image file).

Offset is the number of bytes into the current segment where BASIC starts saving. Must be in the range 0 to 65535.

Length is the length in bytes of the memory image file to be saved. Must be in the range 1 to 65535.

BSAVE "prog1.bas" BSAVE "prog2.bas", 50

MERGE overlays the lines of the chained program with the current program.

DELETE deletes lines in the overlay so that you can merge in a new overlay.

```
CHAIN "prog2"  
CHAIN "subprog.bas", , ALL
```

CHDIR *dirpath*

Changes the current directory to *dirpath*.

```
CHDIR "B:\ACCTS\RECVBLE"      CHDIR ".."
```

CHR\$(code)

Returns the character corresponding to an ASCII or control *code*.

```
PRINT CHR$(35)      C$=CHR$(32)
```

CINT(number)

Converts *number* to integer by rounding the fraction portion of *number*. *Number* must be in the range -32768 to 32767.

```
PRINT CINT(1.6)      Z=CINT(-1.67)
```

CIRCLE [STEP] (x,y),radius [,color [,start,end [,aspect]]]

Graphics. Draws an ellipse on the screen, the center of which is (x,y).

STEP designates (x,y) as relative coordinates.

Radius is the major axis of the ellipse.

Start,end are the beginning and ending angles in radians. Must be in the range -6.283186 to 6.283186, or -2 * pi to 2 * pi.

Aspect is the ratio of the x-radius to the y-radius in terms of coordinates. If *aspect* is less than 1, *radius* is the x-radius and is measured in points in the horizontal direction. If *aspect* is greater than 1, *radius* is the y-radius and is measured in points in the vertical direction.

```
CIRCLE (150,100),50
```

CLEAR [*memory location*] [*stack space*] [*video memory*]

Frees memory for data without erasing the program currently in memory. CLEAR erases all arrays, sets numeric variables to zero and string variables to null, and erases any information set using a DEF statement, such as DEF SEG and DEF FN. CLEAR also turns off the SOUND, PEN, and STRIG functions and resets the music background.

Memory location specifies the highest memory location available for BASIC.

Stack space specifies the amount of memory to set aside for temporarily storing internal data and addresses during subroutine calls and during FOR/NEXT loops. Default = 768 bytes or one-eighth of the memory available, whichever is smaller.

Video memory specifies the amount of memory to be set aside as video memory. Default = 16K (16384).

CLEAR **CLEAR, 45000** **CLEAR , , , 32768**

CLOSE [*buffer,...*]

Closes access to a disk file or communications channel. If you omit *buffer*, BASIC closes all open files.

CLOSE **CLOSE 1, 2, 8**

CLS

Clears the screen (or active viewport) and returns the cursor to the home position. Home is Row 0, Column 0, or in other words, the upper left corner of the screen.

CLS

COLOR [*background*] [, [*palette*]]
(Screen Mode 1)

COLOR [*foreground*][, [*background*]]
(Screen Modes 3-6)

Graphics. Selects the background color and either the palette or foreground colors, depending on the current screen mode.

Palette specifies which palette to use in Screen Mode 1 and may be 0 or 1.

10 COLOR 9,0

COLOR ,3

COLOR [*foreground*][, [*background*][, [*border*]]]

Text Mode Only. Selects the display colors for the foreground, background, and border for Screen Mode 0. COLOR can use any of the colors in the 16 Color Set as foreground and border. Specify *color + 16* as *foreground* to get a blinking foreground. *Background* can be Colors 0 to 15 of the 16 Color Set. If you select blinking foreground, *background* can be Colors 0 to 7.

COLOR 0,7

COLOR 1, 0

COM(*channel*) *action*

Turns on, turns off, or temporarily halts the trapping of activity on the communications channel. *Channel* specifies communications channel 1 or 2.

COM() ON enables communications trapping.

COM() OFF disables communications trapping.

COM() STOP temporarily suspends communications trapping.

COMMON *variable*[, *variable*,...]

Passes *variables* to a chained program. Both programs in the chain should contain a COMMON statement.

COMMON A, B\$, C, D(), G\$()

CONT

Resumes program execution when stopped by the **(BREAK)** key or execution of a **STOP** or an **END** statement.

```
CONT
```

COS(*number*)

Returns the cosine of *number*.

```
PRINT COS(5.8)           Y = COS(X * .0174533)
```

CSNG(*number*)

Converts *number* to single precision. BASIC rounds the number when converting it to single precision.

```
PRINT CSNG(.1453885509)   Z=CSNG(A#)
```

CSRLIN

Returns the current row position of the cursor.

```
PRINT CSRLIN           A=CSRLIN
```

CVD(*8-byte string*)

Converts an 8-byte string to a double precision number. Use to restore data to numeric form after it is read from the disk.

```
A# = CVD(GROSSPAY$)     D=CVD(TOTAL$)
```

CVI(*2-byte string*)

Converts a 2-byte string to an integer. Use to restore data to numeric form after it is read from the disk.

```
A%=CVI(INVTRY$)        I=CVI(QTY$)
```

CVS(4-byte string)

Converts a 4-byte string to a single precision number. Use to restore data to numeric form after it is read from the disk.

A! = CVS (TOTAL\$) S = CVS (DOLLR\$)

DATA constant [,constant,...]

Stores numeric and string constants to be accessed by a READ statement. String constants containing delimiters, such as leading or trailing blanks, colons, or commas, must be enclosed in quotation marks when used in DATA statements.

DATA NEW YORK, CHICAGO, LOS ANGELES

DATE\$[= string]

Sets the date or retrieves the current date.

String is a literal, enclosed in quotation marks, that sets the date by assigning its value to DATE\$. Month may be any number 01-12, day may be 01-31, and year may be 01-99 or 1980-2099. If you omit *string*, BASIC retrieves the current date.

DATE\$ = "04/17/85" TODAY\$ = DATE\$

DEFDBL letter [,letter,...]

Defines any variables beginning with *letter(s)* as double precision variables.

DEFDBL A DEFDBL J-O

DEFINT letter [,letter,...]

Defines any variables beginning with *letter(s)* as integer variables.

DEFINT L DEFINT A-G

DEFSNG *letter* [,*letter*,...]

Defines any variables beginning with *letter(s)* as single precision variables.

DEFSNG T

DEFSNG Q-Z

DEFSTR *letter* [,*letter*,...]

Defines any variables beginning with *letter(s)* as string variables.

DEFSTR A

DEFSTR G-M

DEF FN*name* [(*argument list*)] = *expression*

Defines *name* as a function according to *expression*.

Name is a valid variable name.

Argument list is a list of dummy variables used in *expression*. They are replaced on a one-to-one basis with the variables or values given when the function is called.

Expression defines the operation to be performed.

```
DEF FNR = RND(1)*69+10
DEF FNW# (A#,B#)=(A#-B#)^2
```

DEF SEG[= *address*]

Assigns the current segment address. The segment address is used by BLOAD, BSAVE, CALL, PEEK, POKE, and USR.

Address is an integer in the range 0 to 65535. *Address* must be on a 16-byte boundary. Default = BASIC's data segment (DS).

DEF SEG

DEF SEG=&HB800

DEF USR*[number]* = *offset*

Defines the user number and segment offset of a subroutine to be called by the USR function.

Number may be an integer in the range 0 to 9. Default = USR0.

Offset is the number of bytes from the current segment address where the subroutine begins. Must be an integer in the range 0 to 65535.

```
DEFUSR = 0
```

```
DEF USR3 = &H0020
```

DELETE *line1-line2*

Deletes *line1* through *line2* of the program in memory. If you omit *line1*, BASIC deletes from the beginning of the program. If you omit *line2*, BASIC deletes to the end of the program. Use a period (.) to indicate the current line.

```
DELETE 70
```

```
DELETE .-110
```

DIM *array*(*dimension*)[,*array*(*dimension*),...]

Sets aside storage for *arrays* with the *dimensions* you specify.

Array is the variable name of a string, integer, single precision, or double precision variable name.

Dimension is 1 or more integer numbers separated by commas that define the dimensions of the array.

```
DIM AR(100)
```

```
DIM L1%(8,25)
```

DRAW *string*

Graphics. Draws an image on the screen.

String specifies 1 or more of the movement commands listed below.

Movement Commands

Movement commands begin movement from the current graphics position, which is the coordinate of the last graphics point plotted with another graphics command. Current position defaults to the center of the screen if no previous graphics command has been executed.

U [<i>n</i>]	Moves up <i>n</i> points.
D [<i>n</i>]	Moves down <i>n</i> points.
L [<i>n</i>]	Moves left <i>n</i> points.
R [<i>n</i>]	Moves right <i>n</i> points.
E [<i>n</i>]	Moves diagonally up and right <i>n</i> points.
F [<i>n</i>]	Moves diagonally down and right <i>n</i> points.
G [<i>n</i>]	Moves diagonally down and left <i>n</i> points.
H [<i>n</i>]	Moves diagonally up and left <i>n</i> points.
M <i>x,y</i>	Moves to point <i>x,y</i> . If you precede <i>x</i> with a plus (+) or minus (-) sign, DRAW assumes it is a relative position. Otherwise, it is an absolute position.

Prefix Commands

Prefix commands can precede the movement commands. They must be enclosed in quotation marks.

B	plots no points after move.
N	returns to original position when move is complete.
A <i>angle</i>	sets angle of move. <i>Angle</i> may be 0 to 3 (0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, and 3 = 270 degrees).
C <i>color</i>	sets color.
P <i>color,border</i>	paints using <i>color</i> and <i>border</i> .
S <i>factor</i>	sets scale factor. <i>Factor</i> is an integer in the range 1 to 255. The scale factor is <i>factor</i> divided by 4. Default=4 (scale of 1).
TA <i>angle</i>	moves at the specified angle. <i>Angle</i> is in the range -360 to +360. If <i>angle</i> is positive, movement is counterclockwise. If <i>angle</i> is negative, movement is clockwise.
X <i>variable;</i>	executes a substring. The X command lets you execute a second substring from the first string, much like the GOSUB statement. <i>Variable</i> is a string variable in your program that contains the substring you want to execute. The semicolon after <i>variable</i> is required.

```
DRAW "U30;"+"D30;"+"L40;"+"R40;"
```

EDIT *line*

Enters the Edit mode. BASIC displays *line* for editing. Use a period (.) to indicate the current line.

EDIT 100

EDIT .

END

Ends program execution and closes all files.

END

ENVIRON "*parameter id=text*" [;"*parameter id=text*",...]

Advanced Statement. Lets you modify BASIC's Environment String Table, such as to change the PATH parameter for a child process or to pass parameters to a child process. BASIC's Environment String Table is initially empty.

Parameter id is the name of the parameter.

Text is the new parameter text. It must be separated from *parameter id* by an equal sign (=) or a space. If you omit *text*, or specify a null string or a semicolon (;), BASIC removes the parameter from the Environment String Table and compresses the table.

Parameter id=text must be enclosed in quotation marks and be entered in uppercase characters.

ENVIRON "PATH=A:\"
ENVIRON "SALES=MYSALES"

ENVIRON\$ [{"parameter id"}] [(number)]

Advanced Function. Returns the specified environment string from BASIC's Environment String Table.

Parameter id is the parameter for which to search and must be enclosed in quotation marks.

Number specifies which parameter to return by its position within the table.

Number and *parameter id* are mutually exclusive; only one may be specified on the command line.

```
PRINT ENVIRON$("PATH")
```

EOF(*buffer*)

Detects the end of a file. *Buffer* is the number assigned to the file when you opened it.

Sequential files: EOF returns 0 (false), when the end-of-file record has not been read yet, and -1 (true), when it has been read.

Direct access files: EOF returns -1 (true) if the last executed GET statement was unable to read an entire record because of an attempt to read beyond the physical end of the file.

```
IF EOF(1) THEN GOTO 1540
```

EOF(*buffer*)

Communications. Detects an empty input queue for communications files. *Buffer* is the number assigned to the file when you opened it.

ASCII mode: EOF returns -1 (true) if a CONTROL-Z is received. EOF remains true until the device is closed.

Binary mode: EOF returns -1 (true) when the input queue is empty. EOF becomes false when the input queue is not empty.

```
IF EOF(3) THEN RETURN
```

ERASE *array*[,*array*,...]

Erases 1 or more *arrays* from memory. Lets you either redimension arrays or use their previously allocated space in memory for other purposes.

ERASE C

ERASE G, H, I, Z\$

ERDEV

Advanced Function. Returns the value of a device error within MS-DOS as set by the Interrupt 24 handler.

The lower 8 bits of ERDEV contain the Interrupt 24 error code.

ERDEV

ERDEV\$

Advanced Function. Returns the name of the device (as set by the Interrupt 24 handler) when a device error occurs. If the error occurred on a character device, ERDEV\$ returns the 8-byte character device name. If the error does not occur on a character device, ERDEV\$ returns the 2-character block device name.

ERDEV\$

ERL

Returns the number of the line in which an error has occurred. If no error has occurred, ERL returns 0. If the error occurs while you are entering something at the prompt, ERL returns 65535 (the largest number that can be represented in 2 bytes).

PRINT ERL

E = ERL

ERR

Returns the error code if an error has occurred.

IF ERR = 7 THEN 1000 ELSE 2000

ERROR *code*

Simulates a specified error during program execution.

Code is an integer expression in the range 0 to 255 specifying one of BASIC's error codes.

```
ERROR 1
```

EXP(*number*)

Returns the natural exponent of *number*, that is, e (base of natural logarithms) to the power of *number*. *Number* must be less than or equal to 88.02968.

```
PRINT EXP(-2)      A=EXP(-6)
```

FIELD *buffer, length AS variable* [,*length AS variable*,...]

Divides a direct access buffer into fields so that you can send data from memory to disk and from disk to memory. Each field is identified by a string *variable* and is the *length* you specify. *Length* must be an integer in the range 1 to 255.

```
FIELD 3, 128 AS A$, 128 AS B$
```

FILES [*pathname*]

Displays the names of the files and directories on a disk.

If you specify *pathname*, BASIC lists all files that match that *pathname*. If you omit the filename when specifying *pathname*, BASIC lists all files and directories in the specified directory. Default = all files and directories in the current directory on the current drive.

```
FILES              FILES "\BOOKS\"
```

FIX(*number*)

Returns the truncated integer of *number*.

```
PRINT FIX(2.6)    Z=FIX(B)
```

FOR *variable* = *initial value* **TO** *final value* [STEP *increment*]
NEXT [*variable*]

Establishes a program loop that allows a series of program statements to be executed a specified number of times.

Variable must be either integer or single precision.

Increment is the number BASIC adds to *initial value* each time the loop is executed. Default = 1.

```
FOR I = 1 TO I + 5 : PRINT I : NEXT
```

FRE(*dummy argument*)

Returns the number of bytes in memory not being used by BASIC. If you specify a numeric argument, BASIC returns the amount of memory available. If you specify a string argument, BASIC compresses the data before returning the amount of memory available. BASIC automatically compresses data if it runs out of workspace.

```
PRINT FRE("44")    PRINT FRE(44)
```

GET [#]*buffer*[,*record*]

Reads a record from a direct access disk file and places it in the specified *buffer*. The number sign (#) is not required.

Record is an integer in the range 0 to 16,777,215. Default = the next sequential record (after the last GET).

```
GET 1                GET 1, 25
```

GET [#]*buffer*,*number*

Communications. Transfers data from the communications line to the communications buffer. The number sign (#) is not required.

Number is the number of bytes to transfer.

```
GET 1, 8
```

GET $(x1,y1)-(x2,y2),array$

Graphics. Transfers points from an area on the display to an array.

$(x1,y1)$ are the coordinates at which the image begins.

$(x2,y2)$ are the coordinates at which the image ends.

Array is a numeric array to hold the image.

```
GET (0,0)-(100,100),Z
```

GOSUB *line*

Branches to the subroutine, beginning at *line*. Every subroutine must end with a RETURN statement.

```
GOSUB 1000
```

GOTO *line*

Branches to the specified *line*.

```
GOTO 100          IF R = 13 THEN GOTO 80
```

HEX\$(number)

Returns a string that represents the hexadecimal value of *number*.

```
PRINT HEX$(30)    Y$ = HEX$(X/16)
```

IF *expression* **THEN** *statement(s)* [**ELSE** *statement(s)*]

Tests a conditional expression and makes a decision regarding program flow.

If *expression* is true, BASIC executes the **THEN** *statement*. If *expression* is false, BASIC executes the matching **ELSE** *statement* or the next program line.

```
IF A < B THEN PRINT "A < B"
ELSE PRINT "B <= A"
```

INKEY\$

Returns a 1-character string from the keyboard without pressing **ENTER**. If no key is pressed, BASIC returns a null string (length zero). INKEY\$ does not echo the character to the display.

```
10 A$ = INKEY$: IF A$ = "" THEN 10
```

INP(*port*)

Returns the byte read from *port*. *Port* may be any integer from 0 to 65535.

```
PRINT INP(255)    A=INP(255)
```

INPUT[;] [*prompt*];*variable*[,*variable*,...]

Accepts data from the keyboard and stores it in 1 or more variables. BASIC stops execution and displays *prompt* followed by a question mark to indicate that the program is waiting for input. If you do not want BASIC to display the question mark, type a comma, instead of a semicolon, after *prompt*.

If INPUT is immediately followed by a semicolon (;), BASIC does not echo the **ENTER** key when you press it as part of a response.

INPUT# *buffer*, *variable*[,*variable*...]

Accepts data from a sequential device or file and stores it in a program *variable*. *Buffer* is the number assigned to the file when you opened it.

```
INPUT#1, A, B      INPUT#4, A$, B$, C$
```

INPUT\$(*number* [, [#]*buffer*])

Inputs a string of characters from either the keyboard or a sequential access file. *Number* specifies the number of characters to be input and may be in the range 1 to 255.

If you include *buffer*, BASIC inputs the string from a sequential access file. If you omit *buffer*, BASIC inputs the string from the keyboard. The number sign (#) is not required.

```
A$ = INPUT$(5)    A$ = INPUT$(11,3)
```

INSTR(*number*,*string1*,*string2*)

Searches for the first occurrence of *string2* in *string1* and returns the position at which the match is found.

Number specifies the position in *string1* to begin searching for *string2* and must be an integer in the range 1 to 255. Default = first character in *string1*.

```
INSTR (3, "1232123", "12")
A$ = "LINCOLN":INSTR(A$,"INC")
```

INT(*number*)

Converts *number* to the largest integer that is less than or equal to *number*. *Number* is not limited to the integer range.

```
PRINT INT(79.89) PRINT INT(-12.11)
```

IOCTL [#]*buffer*,*string*

Advanced Statement. Sends a control data string to a device driver. *Buffer* is the number assigned to the driver when you opened it. The number sign (#) is not required.

String is a string expression containing a series of commands called "control data." The commands are generally 2 to 3 characters long and may be followed by an alphanumeric argument. The commands are separated by semicolons (;). *String* may be a maximum of 255 bytes.

```
IOCTL #1, "PL56"
```

IOCTL\$([#]*buffer*)

Advanced Function. Returns the control data string from a device driver that you have opened previously. *Buffer* is the number assigned to the driver when you opened it. The number sign (#) is not required.

```
IF IOCTL$(1) = "NR" THEN PRINT
"PRINTER NOT READY"
```

KEY *number,string*

Assigns or displays function key values. *Number* indicates the function key (1-12) or the user key (17-20) being defined. See KEY (*number*) *action*.

String is the string expression assigned to the key and may contain a maximum of 15 characters.

KEY ON

Displays the function key assignment values on Line 25 of the screen. BASIC shows only the first 5 characters of the string. (CTRL) T is the same as KEY ON.

KEY OFF

KEY OFF erases the soft key assignments from Line 25. The assignments are still active, but the screen does not display them.

KEY LIST

KEY LIST displays all 15 characters of all 12 soft key assignments on the screen.

KEY(*number*) *action*

Turns on, turns off, or temporarily halts key trapping for a specified key.

- KEY() ON enables key trapping
- KEY() OFF disables key trapping
- KEY() STOP temporarily suspends key trapping

Number may be a number in the range 1 to 20, indicating the number of the key to trap. Function keys use their corresponding function key number (1-12). The cursor direction keys are:

- (↑) 13
- (←) 14
- (→) 15
- (↓) 16

User-defined keys are 17-20. Use the following syntax to define your own user keys:

KEY *number*, CHR\$(*key*)+CHR\$(*scan*)

Key is one of the following:

&H40	Ⓢ lock key
&H20	Ⓝ key
&H08	ⓐ key
&H04	Ⓚ key
&H02	Left Ⓢ key
&H01	Right Ⓢ key

Scan is the scan code for a physical key on the keyboard.

KILL *pathname*

Kills (deletes) *pathname* from disk.

```
KILL "file.bas"
KILL "A:\REPORT\data"
```

LEFT\$(string,number)

Returns the specified number of characters from the left portion of *string*. *Number* must be in the range 1 to 255.

```
PRINT LEFT$("BATTLESHIPS", 6)
```

LEN(string)

Returns the number of characters in *string*. Blanks are counted.

```
PRINT LEN("DOG") + LEN("TERRIER")
X = LEN(SENTENCE$)
```

LET *variable* = *expression*

Assigns the value of *expression* to *variable*. BASIC does not require assignment statements to begin with LET.

```
LET A$ = "A ROSE IS A ROSE"
LET B1 = 1.23
```

LINE [(STEP)(*x1,y1*)]-(STEP)(*x2,y2*),[*color*][,B[F]] [,*style*]

Graphics. Draws a line or a box on the video display.

STEP designates (*x,y*) as relative coordinates.

(*x1,y1*) are the coordinates at which the line begins. Default = last point referenced on the screen.

(*x2,y2*) are the coordinates at which the line ends.

With the **B** option, BASIC draws a box. The points that you specify are opposite corners.

If you specify both the **B** and **F** options, BASIC draws a box and fills the box in with *color*.

Style is a 16-bit integer that lets you select the line-style used when drawing normal lines and unfilled boxes. Each bit represents a point in the line. If the bit equals 1, then the point is drawn. If the bit equals zero, then the point is not drawn.

```
LINE (0,0)-(319,199)
LINE -(319,199),BF
```

LINE INPUT[:][*"prompt"*]; *string variable*

Accepts an entire line (a maximum of 254 characters) from the keyboard, including delimiters (commas, quotation marks, etc.). BASIC stops execution and displays *prompt* to indicate that the program is waiting for input.

The only way to terminate the string input is to press **ENTER**. However, if **LINE INPUT** is immediately followed by a semicolon, pressing **ENTER** does not echo a carriage return to the display.

```
LINE INPUT A$
LINE INPUT "LAST, FIRST NAME? "; N$
```

LINE INPUT#*buffer, variable*

Accepts an entire line of data from a sequential access file, including delimiters (commas, quotation marks, etc). *Buffer* is the number assigned to the file when you opened it.

```
LINE INPUT#1, A$
```

LIST *startline-endline* [,*device*]

Lists a program in memory to the display.

Startline specifies the first line to be listed. Default = first line in the program.

Endline specifies the last line to be listed. Default = last line in the program.

Device may be either SCRN: (screen) or LPT1: (printer). Default = screen (SCRN:).

```
LIST                               LIST 50-100, LPT1:
```

LLIST *startline-endline*

Lists program lines in memory to the printer. LLIST assumes a 132-character-wide printer. You may change this by using the WIDTH statement. *Startline* and *endline* are described in LIST.

```
LLIST                               LLIST 68-90
```

LOAD *pathname* [,R]

Loads a BASIC program from disk into memory. The R option tells BASIC to run the program.

```
LOAD "A:prog1.bas"
LOAD "prog1.bas",R
```

LOC(*buffer*)

Returns the current record position within a file. *Buffer* is the number assigned to the file when you opened it.

Direct access files: LOC returns the record number accessed by the last GET or PUT statement.

Sequential access files: LOC returns the number of 128-byte records that have been read or written.

```
A=LOC(2)                            IF LOC(1)>55 THEN END
```

LOC(buffer)

Communications. Returns the number of characters in the input queue. *Buffer* is the number assigned to the file when you opened it.

If more than 255 characters are in the input queue, LOC always returns 255. If fewer are there, LOC returns the actual number of characters waiting to be read.

```
IF LOC(X) > 0 THEN 1000
```

LOCATE [row][, [column][, [cursor][, [start][, stop]]]]

Positions the cursor on the screen at the position indicated by *row* and *column*.

Cursor indicates whether the cursor is visible or invisible. 1 = visible and 0 = invisible.

Start is the first scan line of the cursor.

Stop is the last scan line of the cursor.

Start and *Stop* can be in the range 0 to 7.

```
LOCATE 10, 20, 1, 4 LOCATE 24, 1, 1, 3
```

LOF(buffer)

Returns the length of the file in bytes. *Buffer* is the number assigned to the file when you opened it.

```
Y = LOF(5)
```

LOF(buffer)

Communications. Returns the amount of free space in the input queue. *Buffer* is the number assigned to the file when you opened it.

You can use LOF to determine when an input queue is getting full so that transmission is stopped.

```
IF LOF(X) < 20 GOTO 1000
```

LOG(*number*)

Returns the natural logarithm of *number*. *Number* must be greater than zero.

```
PRINT LOG(3.14159)
Z = 10 * LOG(P5/P1)
```

LPOS(*number*)

Returns the logical position of the print head within the printer's buffer. *Number* can be 0 or 1 to indicate LPT1:.

```
IF LPOS(X)>60 THEN LPRINT
```

LPRINT [**USING** *format*;] *data*[,*data*,...]

Prints *data* on the printer. LPRINT and LPRINT USING assume a print width of 132 characters. You may change the width with the WIDTH statement.

See PRINT and PRINT USING for more information on formatting the output.

```
LPRINT (A * 2) / 3
LPRINT USING "#####.#"; 2.17
```

LSET *field name* = *data*

Moves *data* to the direct access buffer and places it in *field name*, in preparation for a PUT statement. *Field name* is a string variable defined in a FIELD statement. You must have used FIELD to set up buffer fields before using LSET.

Any numeric value that is placed in a direct access file buffer with an LSET statement must be converted to a string. See MKS\$, MKD\$, and MKI\$.

```
LSET AD$ = "2000 EAST PECAN ST."
LSET TD$ = D$
```

MERGE *pathname*

Loads a BASIC program and merges it with the program currently in memory. Program lines in *pathname* are inserted into the resident program in sequential order. The file must be in ASCII format; that is, it must have been saved with the A option.

If line numbers in *pathname* coincide with line numbers in the resident program, *pathname*'s program lines replace the resident program's lines.

```
MERGE "prog2.txt"
```

MID\$(oldstring,start[,length])=newstring

Replaces a portion of *oldstring* with *newstring*.

Start specifies the position of the first character you want to change.

Length is the number of characters you want to replace.

```
MID$ ("ABCDEFGH I J" , 3 , 4)  
A$=MID$ (Z$ , 4 , 5)
```

MID\$(string, start [,length])

Returns a substring of *string*.

Length is the number of characters in the substring. It must be in the range 1 to 255.

Start specifies the position in the string from which to get the substring.

```
PRINT MID$ ("WEATHERFORD" , 3 , 2)  
A$=MID$ (T$ , 4 , 5)
```

MKDIR *dirpath*

Creates the directory specified by *dirpath*.

```
MKDIR "A:\ACCTS\PAYABLE"  
MKDIR "\ADDRESS"
```

MKD\$(double-precision expression)

Converts a numeric value to an 8-byte string value. This is the inverse function of CVD.

Any numeric value that is placed in a direct access file buffer by an LSET or RSET statement must be converted to a string.

```
LSET YTD$ = MKD$(564.33)
RSET DAY$=MKD$(DAY)
```

MKI\$(integer expression)

Converts a numeric value to a 2-byte string value. This is the inverse function of CVI.

Any numeric value that is placed in a direct access file buffer by an LSET or RSET statement must be converted to a string.

```
LSET TOT$ = MKI$(TOT)
RSET QTY$=MKI$(NUM)
```

MKS\$(single-precision expression)

Converts a numeric value to an 4-byte string value. This is the inverse function of CVS.

Any numeric value that is placed in a direct access file buffer by an LSET or RSET statement must be converted to a string.

```
LSET AVG$ = MKS$(0.123)
RSET MIX$=MKS$(A)
```

NAME old filename AS new filename

Renames *old filename* as *new filename*. You cannot change directory names.

```
NAME "file.bas" AS "file.old"
```

NEW

Deletes the program currently in memory and clears all variables.

```
NEW
```

NOISE *source,volume,duration*

Generates noise through a TV monitor's speaker (external speaker). You must execute a SOUND ON statement before using NOISE.

Source selects the type of noise and may be an integer in the range 0 to 7. 0-3 selects periodic noise and 4-7 selects white noise.

Volume is an integer in the range 0 to 15 where 0 is the quietest and 15 is the loudest. Default = 8.

Duration may be in the range 0 to 65536. A *duration* of 18.2 equals 1 second.

```
NOISE 0,15,20
```

OCT\$(number)

Returns a string that represents the octal value of a decimal *number*.

```
PRINT OCT$(30)    $$=OCT$(90)
```

ON COM(channel) GOSUB line

Transfers program control to a subroutine beginning at *line* when activity occurs on the specified communications channel.

Channel specifies communications channel 1 or 2.

Line is the subroutine line at which execution begins when activity occurs on the communications channel. Specifying Line 0 turns off communications trapping.

```
ON COM(1) GOSUB 1000
```

ON ERROR GOTO line

Transfers control to *line* if an error occurs. You must execute an ON ERROR GOTO before the error occurs. Specifying Line 0 turns off error trapping.

```
ON ERROR GOTO 1500
```

ON *n* GOSUB *line*[,*line*,...]

Looks at *n* and transfers program control to the subroutine indicated by the *n*th line listed.

If *n* equals 1, BASIC branches to the first line listed. If *n* equals 2, BASIC branches to the second line listed, and so on. *N* must be in the range 0 to 255.

```
ON Y GOSUB 1000, 2000, 3000
```

ON *n* GOTO *line*[,*line*,...]

Looks at *n* and transfers program control to the *n*th line listed.

If *n* equals 1, BASIC branches to the first line listed. If *n* equals 2, BASIC branches to the second line listed, and so on. *N* must be in the range 0 to 255.

```
ON MI GOTO 150, 160, 170, 150, 180
```

ON KEY(*number*) GOSUB *line*

Transfers program control to a subroutine, beginning at *line* when you press the specified key.

Number indicates the number of the key to trap. Function keys are 1 to 12. The cursor direction keys are numbered:

- ␣ 13
- ← 14
- 15
- ␣ 16

User keys are numbered 17 through 20. User keys are defined with the KEY statement.

Specifying Line 0 turns off key trapping for the specified key.

```
ON KEY(13) GOSUB 500
```

ON PEN GOSUB *line*

Transfers program control to the subroutine at *line* when you activate the light pen. Specifying Line 0 turns off pen trapping.

```
ON PEN GOSUB 1000
```

ON PLAY(number) GOSUB *line*

Transfers program control to the subroutine, beginning at *line* when the number of notes in the background music buffer is less than *number*.

Number indicates that control should transfer to *line* when the number of notes left in the music buffer is less than *number*. *Number* must be in the range 1 to 32.

Specifying Line 0 turns off play trapping.

```
ON PLAY(30) GOSUB 200
```

ON STRIG(number) GOSUB *line*

Transfers program control to the subroutine at *line* when you press one of the joystick's buttons.

Number specifies the button pressed and is one of the following:

- 0 left joystick, button 1
- 2 right joystick, button 1
- 4 left joystick, button 2
- 6 right joystick, button 2

Specifying Line 0 turns off joystick trapping.

```
10 ON STRIG(0) GOSUB 1000
```

ON TIMER(number) GOSUB *line*

Transfers program control to the subroutine, beginning at *line* when the specified time has elapsed.

Number indicates the number of seconds. It may be a value in the range 1 to 86400 (86400 seconds = 24 hours).

```
ON TIMER(3600) GOSUB 500
```

OPEN *mode*,[#]*buffer*,[*pathname*][*dev*:][,*record length*]
OPEN [*pathname*][*dev*:] [FOR *mode*] AS [#]*buffer*
 [LEN = *record length*]

Establishes an input/output path for a file or device.

Buffer specifies the I/O buffer in memory to use when accessing the file and may be in the range 1 to 15. The number sign (#) is not required.

If you do not specify *pathname*, you must specify *dev*:

Record length sets the record length for direct access files and may be in the range 1 to 32768. Default = 128 bytes.

Mode specifies any of the following:

O or OUTPUT	sequential output mode
I or INPUT	sequential input mode
A or APPEND	sequential output and extend mode
R or RANDOM	direct input/output mode

In the first form of the syntax, you must use the abbreviated form of *mode* and enclose it in quotation marks.

In the second form of the syntax, you must specify the complete word for *mode*. You may not specify RANDOM. If you want to use direct access in the second form of the syntax, omit *mode*.

```
OPEN "R",2,"TEST.DAT"  
OPEN "LPT1:" FOR OUTPUT AS #2
```

OPEN “COM*channel*: [*speed*] [,*parity*] [,*data*][,*stop*][,RS]
 [,CS[*seconds*]][,DS[*seconds*]] [,CD[*seconds*]][,*mode*][,*LF*]” AS [#]*buffer*
 [LEN = *number*]

Opens a file and allocates a buffer for RS-232C (Asynchronous Communications Adapter) communication.

Channel specifies communications channel 1 or 2.

Speed specifies the baud rate and may be 75, 110, 150, 300, 600, 1200, 1800, 2400, 4800, or 9600. Default = 300.

Parity may be E for EVEN, O for ODD, M for MARK, S for SPACE, or N for NO. Default = E (EVEN).

Data specifies the number of bits and may be 4, 5, 6, 7, or 8. Default = 7.

Stop may be either 1 or 2 to indicate the number of stop bits. Default = 2 for baud rates of 75 and 110 and 1 for all other baud rates.

Buffer indicates the buffer that accesses the file and may be in the range 1 to 15. The number sign (#) is not required.

Number specifies the maximum number of bytes that can be accessed in the communications buffer by GET and PUT statements. Default = 128 bytes.

```
OPEN "COM1:" AS 1
OPEN "COM2:9600,N,8,1,BIN" AS 2
```

OPTION BASE *value*

Sets *value* as the minimum value for an array subscript. This statement must precede the DIM statement.

Value may be 1 or 0. Default = 0.

```
OPTION BASE 1
```

OUT *port, data byte*

Sends a *data byte* to a machine output *port*. A port is an input/output location in memory.

Port is an integer in the range 0 to 65535 and *data byte* is an integer in the range 0 to 255.

```
OUT 32,100
```

PAINT (*x,y*) [*color*[,*border*][,*background*]]

Graphics. Fills in an area on the display with a selected color or pattern.

(*x,y*) are the coordinates at which painting begins.

Color can be either a number or a string expression. If *color* is a number it specifies a color number available in the current screen mode.

If *color* is a string expression, it specifies the mask to be used for tiling in the form:

`CHR$(&Hnn)+CHR$(&Hnn)+CHR$(&Hnn) . . .`

Border is the color at which to stop painting.

Background is the color to skip when checking for borders while paint tiling.

PALETTE [*color,display color*]

Graphics. Changes the color associated with a particular color number in the current palette.

Color specifies the color in the current palette you want to change.

Display color specifies the new color you want BASIC to display when *color* is specified.

`PALETTE 3,7`

PALETTE USING *array(subscript)*

Graphics. Changes the colors associated with more than 1 of the color numbers in the current palette.

Array is the name of an integer array in which you can define the order of colors to be put in the current palette.

Subscript is the position in the array that contains the value of the first position for the palette.

`PALETTE USING A(0) PALETTE USING A(2)`

PCOPY *source page,destination page*

Copies the *source* video page to the *destination* video page.

`PCOPY 3,5 PCOPY 6,4`

PEEK(*memory location*)

Returns a byte from *memory location*. *Memory location* must be in the range -32768 to 65535. The value returned is an integer in the range 0 to 255.

A = PEEK (&H5A00)

PEN(*number*)

Returns the light pen's coordinates.

Number is a number in the range 1 to 9 that tells BASIC what to return.

- 0 Returns a -1 if pen button has been pressed since last poll. Returns a 0 if not.
- 1 Returns the x coordinate (horizontal) where the pen was last activated.
- 2 Returns the y coordinate (vertical) where the pen was last activated.
- 3 Returns a -1 if the pen button is pressed. Returns a 0 if it not.
- 4 Returns the last known valid x coordinate (horizontal).
- 5 Returns the last known valid y coordinate (vertical).
- 6 Returns the character row position where the pen was last activated.
- 7 Returns the character column position where the pen was last activated.
- 8 Returns the last known character row position.
- 9 Returns the last known character column position.

A = PEN (1)

PEN *action*

Turns on, turns off, or temporarily halts light pen event trapping.

- PEN ON enables event trapping.
- PEN OFF disables event trapping.
- PEN STOP temporarily suspends event trapping.

PLAY *string*

Plays the musical notes specified by *string*.

String is a string expression consisting of 1 or more single-character music commands.

Single character music commands:

- A - G** plays notes A through G of 1 musical scale. You may include an optional number sign (#) or plus sign (+) to indicate a sharp note or a minus sign (-) to indicate a flat note.
- L***n* sets the duration of the notes that follow. *N* may be a value in the range 1 to 64 where:
- 1 indicates a whole note.
 - 2 indicates a half note.
 - 4 indicates a quarter note.
 - 8 indicates an eighth note.
 - 16 indicates a sixteenth note.
- O***n* sets the current octave. There are 7 octaves, 0 through 6. Octave 3 starts with middle C. Default = Octave 4.
- N***n* plays a note. *N* may be in the range 0 to 84.
- P***n* rests. *N* may be in the range 1 to 64.
- T***n* sets the number of quarter notes in 1 minute. *N* may be in the range of 32 to 255. Default = 120 quarter notes in 1 minute.
- plays as a dotted note. BASIC plays the note one-half its length longer.
- MF** plays the music in the foreground. Default = MB.
- MB** plays the music in the background. A maximum of 32 notes and/or rests can play in background at a time. Default = MB.
- MN** sets "music normal"; each note plays 7/8 of the duration as set by the L option. Default = MN.
- ML** sets "music legato"; each note plays the full duration as set by the L option. Default = MN.
- MS** sets "music staccato"; each note plays 3/4 of the duration as set by the L option. Default = MN.

X variable; executes a substring. You can have 1 string execute another, which executes a third, and so on.

Vn sets the volume. *n* must be in the range 0 to 15. You must execute a SOUND ON statement to use this option. Default = 8.

```
PLAY "C4F.C8F8.C16F8.G16A2F2"
```

PLAY(*number*)

Returns the number of notes currently in the background music queue.

Number is a dummy argument when SOUND is OFF. If you execute a SOUND ON, then *number* may be one of the following (Default = 0):

- 0 returns the number of notes left to play on Voice Channel 0.
- 1 returns the number of notes left to play on Voice Channel 1.
- 2 returns the number of notes left to play on Voice Channel 2.

```
X=PLAY(0)
```

```
X=PLAY(2)
```

PLAY *action*

Turns on, turns off, or temporarily halts background music event trapping.

PLAY ON enables play event trapping.

PLAY OFF disables play event trapping.

PLAY STOP temporarily suspends play event trapping.

PMP(*coordinate,action*)

Returns the physical or world coordinate for the specified coordinate.

Coordinate is any x or y coordinate.

Action is one of the following:

- 0 returns the physical x-coordinate for the specified world coordinate.
- 1 returns the physical y-coordinate for the specified world coordinate.
- 2 returns the world x-coordinate for the specified physical coordinate.
- 3 returns the world y-coordinate for the specified physical coordinate.

X=PMAP(200,3)

Z=PMAP(50,0)

POINT (*x,y*)

POINT (*action*)

Graphics. Returns the color number of a point on the screen or returns the current physical or world coordinates.

(*x,y*) are the coordinates of the point.

Action is one of the following:

- 0 returns the current physical x-coordinate (horizontal).
- 1 returns the current physical y-coordinate (vertical).
- 2 returns the world x-coordinate if WINDOW is active. Otherwise, returns the physical x-coordinate.
- 3 returns the world y-coordinate if WINDOW is active. Otherwise, returns the physical y-coordinate.

**IF POINT(1,1) <>0 THEN PRESET(1,1)
ELSE PSET(1,1) X=POINT(1)**

POKE *memory location, data byte*

Writes *data byte* into *memory location*.

Both *memory location* and *data byte* must be integers. *Memory location* must be in the range -32768 to 65535.

POKE &H5A00, &HFF

POS(*number*)

Returns the current column position of the cursor.

Number is a dummy argument.

```
IF POS(X) > 70 THEN IF A$ = CHR$(32)
THEN A$ = CHR$(13)
```

PRINT *data* [, *data*...]

Prints numeric or string *data* on the display. You can substitute a question mark (?) in place of the word PRINT.

If you use commas, the cursor automatically advances to the next tab position before printing the next item.

If you use semicolons or spaces to separate the data items, PRINT prints the items without any spaces between them.

```
PRINT "DO"; "NOT"; "LEAVE"; "SPACES"
PRINT "THE TOTAL IS", TTL
```

PRINT USING *format*; *data* [, *data*...]

Prints data using a format you specified. This statement is especially useful for printing report headings, accounting reports, checks, or any other documents that require a specific format.

Format consists of 1 or more field specifier(s), or any alphanumeric character. *Format* must be enclosed in quotation marks.

Data may be a string and/or numeric value(s).

Specifiers for String Fields:

- ! prints only the first character in the string.
- \spaces\ prints 2 + *n* characters from the string. (*N* is the number of spaces between the slashes.)
- & prints the string without modifications.

Specifiers for Numeric Fields:

- # prints the same number of digit positions as number signs (#). You may insert a decimal point at any position.
- + prints the sign of the number. The plus sign may be typed at the beginning or at the end of the format string.
- prints a negative sign *after* negative numbers and a space after positive numbers.
- ** fills leading spaces with asterisks.
- \$\$ prints a dollar sign immediately before the number. You may not use exponential format with \$\$.
- **\$ fills leading spaces with asterisks and prints a dollar sign immediately before the number.
- ,
- prints a comma before every third digit to the left of the decimal point.
- ^^^^ prints in exponential format. The 4 exponent signs are placed after the digit position characters. You may specify any decimal point position.
- _ prints the next character as a literal character.

```
PRINT USING ".####^^^"; 888888
PRINT USING "**$###, .##"; 1234.5
PRINT USING "###2.#-"; -768.660
PRINT USING "###.##"; 876.567
```

PRINT] *buffer*,[USING *format*] *data*[*data*,...]

Writes data items to a sequential access file. PRINT# does not compress the data before writing it to disk. It writes an ASCII-coded image of the data.

See PRINT USING for information about the *format* parameter.

PRINT# 1, A

PRINT# 1, B\$, T\$

PSET [STEP] (*x,y*)[*color*]
PRESET [STEP] (*x,y*)[*color*]

Graphics. Draws a point on the display. If you use PSET, *color* defaults to the foreground color. If you use PRESET, *color* defaults to the background color.

(*x,y*) are the coordinates of the point. STEP designates (*x,y*) as relative coordinates.

PSET (1,1) PRESET (1,1),0

PUT [#]*buffer*[*record*]

Puts a *record* in a direct access file. The number sign (#) is not required.

Record is the number of the record to be written to the file and may be in the range 1 to 16,777,215. Default = current record number.

PUT 1 PUT 1,25

PUT [#]*buffer,number*

Communications. Transfers data from the communications buffer to the communications line. The number sign (#) is not required.

Number is the number of bytes to transfer.

PUT 2,80

PUT (*x,y*),*array*[*action*]

Graphics. Transfers an image stored in an array to the screen.

(*x,y*) are the coordinates at which the image begins (the upper left corner of the image). Default = last point referenced.

Array is the array variable name that holds the image.

Action sets the type of interaction between the transferred image and the image already on the screen. *Action* may be PSET, PRESET, AND, OR, or XOR. Default = PRESET.

RANDOMIZE [*number*]

Reseeds the random number generator.

Number may be an integer, or single- or double-precision number. If you omit *number*, BASIC suspends program execution and prompts you for a number before executing RANDOMIZE.

```
RANDOMIZE          RANDOMIZE 300
RANDOMIZE TIMER
```

READ *variable* [, *variable*, ...]

Reads values from a DATA statement and assigns them to *variables*.

```
READ T            READ N$, D$
```

REM

Inserts a remark line in a program. You may use an apostrophe (') as an abbreviation for REM.

```
REM AVERAGE VELOCITY      'TOTALS
```

RENUM [*new line*][, [*line*][, *increment*]]

Renumbers the program currently in memory. RENUM also changes all line number references appearing after GOTO, GOSUB, THEN, ON/GOTO, ON/GOSUB, ON ERROR GOTO, RESUME, and ERL.

Line is the line in the program at which BASIC starts renumbering. Default = first line.

New line is the new line number assigned to *line*. Default = Line 10.

Increment tells BASIC how to number the successive lines. Default = 10.

```
RENUM            RENUM 600, 5000, 100
```

RESET

Closes all open files on all drives.

```
RESET
```

RESTORE [*line*]

Restores a program's access to previously read DATA statements.

Line specifies the DATA statement to be accessed at the next READ statement. Default = first DATA statement.

RESTORE

RESUME [*line*]
RESUME NEXT

Resumes program execution after an error-handling routine.

RESUME *line* branches to the specified line number. Default = line in which the error occurred. **RESUME NEXT** branches to the statement following the point at which the error occurred.

RESUME **RESUME 10** **RESUME NEXT**

RETURN [*line*]

Returns control from a subroutine executed by a GOSUB to the specified *line*. Default = line immediately following the GOSUB.

RETURN **RETURN 40**

RIGHT\$(string,number)

Returns the specified number of characters from the far right portion of *string*. *Number* must be an integer in the range 1 to 255.

```
PRINT RIGHT$("WATERMELON",5)
PRINT RIGHT$("PUPPY",25)
```

RMDIR *dirpath*

Removes (deletes) the directory specified by *dirpath*. The directory being deleted must be empty except for the "." and ".." symbols. Use the MS-DOS COPY command or the KILL statement to remove files from the directory.

```
RMDIR "NAMES"
RMDIR "A:\ACCTS\PAYABLE"
```

RND[(*number*)]

Returns a random number between 0 and 1.

If *number* is negative, RND starts the sequence of random numbers at the beginning. If *number* is 0, RND repeats the last number generated.

```
PRINT RND(1)           A = RND(0)
```

RSET *field name* = *data*

Sets *data* in a direct access buffer *field name* in preparation for a PUT statement.

```
RSET A$ = CVI(Z)
```

RUN [*line*]**RUN** *pathname*[,R]

Executes a program. *Line* is the program line at which BASIC begins execution. Default = first line.

If you specify the R option, BASIC does not close the open files before loading the new program into memory. If you omit the R option, BASIC closes all open files before loading the program.

```
RUN                   RUN 100  RUN "program.a"
```

SAVE *pathname* [,A]**SAVE** *pathname* [,P]

Saves a program on disk with the specified name.

The A option saves the program in ASCII format. Default = compressed format.

The P option saves the file in an encoded binary format. The only operations that can be performed on the file are RUN, LOAD, and CHAIN.

```
SAVE "A:file1.bas"  
SAVE "\EDUC\mathpak.txt", A
```

SCREEN (*row*, *column*, [*number*])

Returns the ASCII code for the character at the specified row and column. *Row* is an integer in the range 1 to 25. *Column* is an integer in the range 1 to 40 or 1 to 80, depending on the screen width.

If *number* is specified and is non-zero, BASIC returns the color number in the range 1 to 16 instead of the ASCII code of the character.

```
A = SCREEN(20, 20)
PRINT SCREEN(10, 10, 1)
```

SCREEN [*mode*][,*burst*][,*active page*]
[*display page*][,*erase*]

Sets the screen attributes to be used by all other graphics statements.

Mode is an integer in the range 0 to 6.

Burst enables or disables color. In Screen Mode 0 (text mode), set *burst* to 0 to disable color or 1 to enable color. In Screen Modes 1 and 4, set *burst* to 0 to enable color or 1 to disable color. *Burst* has no effect in Screen Modes 3, 5, and 6 where color is always enabled or in Screen Mode 2, which is black and white.

Active page selects the video page to which BASIC will write. All output statements to the screen go to the selected *active page*. Default = Page 0 or current active page.

Display page selects the video page for BASIC to display. Default = *active page*.

Erase tells BASIC how much video memory to erase. *Erase* can be one of the following:

- 0 Do not erase video memory, even if the screen mode changes.
- 1 Erase the union of the new page and old page if *mode* or *burst* change. Default = 1.
- 2 Erase all video memory if *mode* or *burst* changes.

```
SCREEN 0, 0
```

```
SCREEN 2
```

SGN(*number*)

Determines *number*'s sign. If *number* is a negative number, SGN returns -1. If *number* is a positive number, SGN returns 1. If *number* is zero, SGN returns 0.

```
PRINT SGN(-55)    Y = SGN(A * B)
```

SHELL [*command*]

Advanced Statement. Loads and executes another program (.EXE or .COM) as a child process to the original program. After the child process ends, control returns to the BASIC program at the statement following the SHELL statement.

Command is a string expression containing the name of the program you want to run.

```
SHELL (ENTER)
```

SIN(*number*)

Returns the sine of *number*. *Number* must be in radians.

```
PRINT SIN(7.96)    S=SIN(T)
```

SOUND *tone,duration*[[*volume*][,*voice*]]
SOUND ON
SOUND OFF

Generates a sound with the *tone* and *duration* specified. While a SOUND statement is producing sound, the program continues to execute.

Tone is an integer in the range 1 to 1023, indicating the frequency in Hertz.

```
tone = CINT (3579545/32 *frequency)
```

Note	Frequency	Note	Frequency
Middle C	523.25	G	783.99
D	587.33	A	880.00
E	659.26	B	987.77
F	698.46	C	1046.50

Duration is an integer in the range 1 to 65535, specifying the duration in clock ticks. Clock ticks occur 18.2 times per second.

Volume is an integer in the range 0 to 15, where 0 is the lowest volume and 15 is the highest volume. Default = 8.

Voice is an integer in the range 0 to 2. Default = 0.

SOUND ON enables the external speaker that supports multivoice sounds using the PLAY or SOUND statements.

SOUND OFF disables the external speaker.

See also BEEP.

```
SOUND 20, 500, 6
```

SPACE\$(*number*)

Returns a string of *number* spaces. *Number* must be in the range 0 to 255.

```
PRINT "COST" SPACE$(4) "QUANTITY"  
SPACE$(9) "TOTAL"
```

SPC(*number*)

Prints *number* blanks. *Number* is in the range 0 to 255.

```
PRINT "HELLO" SPC(15) "THERE"
```

SQR(*number*)

Returns the square root of *number*. *Number* must be greater than zero.

```
PRINT SQR(155.7)
```

STICK(*action*)

Returns the coordinates of the joysticks.

Action may be one of the following:

- 0 returns the horizontal (x) coordinate for left joystick.
- 1 returns the vertical (y) coordinate for left joystick.
- 2 returns the horizontal (x) coordinate for right joystick.
- 3 returns the vertical (y) coordinate for right joystick.

```
STICK (2)           STICK (0)
```

STOP

Stops program execution.

```
STOP
```

STR\$(number)

Converts *number* to a string.

```
S$ = STR$(X)       PRINT STR$(-234)
```

STRIG ON
STRIG OFF

Enables the STRIG function.

STRIG ON lets you execute STRIG function statements to return the status of the joystick buttons.

If you execute a STRIG OFF statement, you can not execute STRIG function.

STRIG(number)

Returns the status of joystick buttons. (L refers to the left joystick and R to the right joystick.)

Number is a number in the range 0 to 7 to test the status of the joystick buttons.

- 0 Tests to see if Trigger L1 has been pressed and released since the last STRIG(0) function was executed. BASIC returns a -1 if it has been pressed and a 0 if not.
- 1 Tests to see if you are currently pressing Trigger L1. BASIC returns a -1 if you are pressing it and a 0 if not.
- 2 Tests to see if Trigger R1 has been pressed and released since the last STRIG(2) function was executed. BASIC returns a -1 if it has been pressed and a 0 if not.
- 3 Tests to see if you are currently pressing Trigger R1. BASIC returns a -1 if you are pressing it and a 0 if not.
- 4 Tests to see if Trigger L2 has been pressed and released since the last STRIG(4) function was executed. BASIC returns a -1 if it has been pressed and a 0 if not.
- 5 Tests to see if you are currently pressing Trigger L2. BASIC returns a -1 if you are pressing it and a 0 if not.
- 6 Tests to see if Trigger R2 has been pressed and released since the last STRIG(6) function was executed. BASIC returns a -1 if it has been pressed and a 0 if not.
- 7 Tests to see if you are currently pressing Trigger R2. BASIC returns a -1 if you are pressing it and a 0 if not.

A = STRIG(0) Z = STRIG(4)

STRIG(number) action

Turns on, turns off, or temporarily halts joystick trapping.

- STRIG ON enables joystick trapping.
- STRIG OFF disables joystick trapping.
- STRIG STOP temporarily halts joystick trapping.

Number is a value of 0, 2, 4, or 6 to indicate the joystick button you are trapping (L=Left, R=Right):

- 0 indicates Trigger L1.
- 2 indicates Trigger R1.
- 4 indicates Trigger L2.
- 6 indicates Trigger R2.

STRIG(0) ON STRIG(6) OFF

STRING\$(number,character)

Returns a string containing the specified number of *character*. *Number* must be in the range 0 to 255.

Character is a string or an ASCII code.

```
B$ = STRING$(25, "X")
PRINT STRING$(50, 10)
```

SWAP variable1,variable2

Exchanges the values of 2 variables of the same type.

```
SWAP F1#, F2#
```

SYSTEM

Returns you to the MS-DOS command level.

```
SYSTEM
```

TAB(number)

Spaces to position *number* on the display.

Number must be in the range 1 to 255.

```
PRINT "NAME" TAB(25) "AMOUNT":PRINT
```

TAN(*number*)

Returns the tangent of *number*. *Number* must be in radians.

```
PRINT TAN(7.96)      S = TAN(X)
```

TIME\$[= *string*]

Sets or retrieves the current time. BASIC uses a 24-hour clock.

String is a literal, enclosed in quotation marks, that sets the time by assigning its value to TIME\$. If you omit *string*, BASIC retrieves the current time.

```
TIME$ = "14:15"      A$ = TIME$
```

TIMER

Returns the number of seconds since midnight or since the last system reset. You can use TIMER as the argument for the RANDOMIZE statement to reseed the random number generator.

```
PRINT TIMER          A = TIMER
```

TIMER *action*

Turns on, turns off, or temporarily halts timer event trapping.

TIMER ON	enables timer event trapping.
TIMER OFF	disables timer event trapping.
TIMER STOP	temporarily suspends timer event trapping.

TROFF
TRON

Turns the trace function on/off. The tracer lets you follow program flow. TRON turns on the tracer and TROFF turns it off.

```
TRON                 TROFF
```

USR[*number*](*argument*)

Calls a user's assembly-language subroutine identified by *number* and passes *argument* to that subroutine.

The *number* you specify must be the same as the corresponding DEF USR statement for that routine. Default = 0.

VAL(*string*)

Calculates the numerical value of *string*.

```
PRINT VAL("100") PRINT VAL("1234E5")
```

VARPTR (*variable*)**VARPTR** ([#]*buffer*)

Returns the offset into BASIC's data segment of a variable or a disk buffer.

When used with *variable*, VARPTR returns the address of the first byte of data identified with *variable*.

When used with *buffer*, VARPTR returns the address of the file's control block. The number sign (#) is not required.

```
PRINT VARPTR(3) A = VARPTR(A$)
```

VARPTR\$(*variable*)

Returns a 3-byte string representing a memory address of a variable:

```
Byte 0 = type
Byte 1 = low byte of address
Byte 2 = high byte of address
```

Type is 2 for integer variables, 3 for string variables, 4 for single precision variables, and 8 for double precision variables.

```
A$ = VARPTR$(A!)
```

VIEW [SCREEN] [(*x1,y1*)-(*x2,y2*)[,*color*][,*border*]]

Graphics. Creates a rectangular viewport that redefines the screen parameters. This defined area, a window, becomes the only place in which you can draw graphic displays.

(*x1,y1*) specifies the upper-left corner of the viewport.

(*x2,y2*) specifies the lower-right corner of the viewport.

SCREEN specifies that all coordinates used in drawing are absolute to point 0,0 on the screen. If you omit SCREEN, all coordinates specified are relative to the viewport coordinates.

```
VIEW (10,10)-(100,100)
VIEW SCREEN (20,25)-(100,150)
```

VIEW PRINT *top line* TO *bottom line*

Creates a text viewport that redefines the text screen parameters.

Top line specifies the first line of the text viewport. It may be in the range 1 to 24, but must be less than *bottom line*. Default = Line 1.

Bottom line specifies the last line of the text viewport. It may be in the range 1 to 24, but must be greater than *top line*. Default = Line 24.

```
VIEW 1 TO 15
```

WAIT *port, number1* [,*number2*]

Suspends program execution until a machine input *port* develops a specified bit pattern. *Number1* and *number2* are integers in the range 0 to 255.

```
WAIT 32,2
```

WHILE *expression*
WEND

Executes a series of statements in a loop as long as a given condition is true.

If *expression* is true, BASIC executes the statements after the WHILE statement until it encounters a WEND statement. Then BASIC returns to the WHILE statement and checks *expression*. If it is still true, BASIC repeats the process. If it is not true, execution resumes with the statement following the WEND statement.

```
WHILE NUM           WEND
```

WIDTH [LPRINT] *size*
WIDTH *buffer, size*
WIDTH *device, size*

Sets the line width in number of characters for the display, printer, or communications channel.

Buffer is the number assigned to the file in the OPEN statement.

Device is a valid device, enclosed in quotation marks, that specifies the device for which you are setting the width. It may be SCRN:, LPT1:, COM1:, or COM2:.

Size may be an integer in the range 0 to 255 that specifies the number of characters in a line. For the screen, *size* may be only 40 or 80.

```
WIDTH 40           WIDTH LPRINT 100
WIDTH "SCRN:", 40
```

WINDOW [SCREEN] [(x1,y1)-(x2,y2)]

Lets you change the physical coordinates of the screen (or current viewport) by defining "world coordinates."

(*x1,y1*) are the world coordinates for the upper-left corner of the screen.

(*x2,y2*) are the world coordinates for the lower-left corner of the screen.

The SCREEN option tells BASIC to set the coordinates similar to the screen display in that the lesser y-coordinate is in the upper-left corner of the screen. If you omit SCREEN, BASIC inverts the y-coordinates to show a true Cartesian coordinate system. That is, the lesser y-coordinate is in the lower-left corner of the screen.

WINDOW lets you plot points outside the normal screen coordinate limits by setting new world coordinates to the screen.

```
WINDOW (1984,100000)-(1987,300000)
```

WRITE *data* [*data*,...]

Writes *data* to the screen.

```
WRITE D, B, V$
```

WRITE#*buffer*, *data* [*data*,...]

Writes *data* to a sequential-access disk file.

```
WRITE#1, A$, B$
```

BASIC Error Codes and Messages

Error Number	Error Message
1	NEXT without FOR
2	Syntax error
3	Return without GOSUB
4	Out of DATA
5	Illegal function call
6	Overflow
7	Out of memory
8	Undefined line number
9	Subscript out of range
10	Redimensioned Array/Duplicate Definition
11	Division by zero
12	Illegal direct
13	Type mismatch
14	Out of string space
15	String too long
16	String formula too complex
17	Can't continue
18	Undefined user function
19	No RESUME
20	RESUME without error
21	Unprintable error
22	Missing operand
23	Line buffer overflow
24	Device Timeout
25	Device Fault
26	FOR without NEXT
27	Out of paper
29	WHILE without WEND
30	WEND without WHILE
50	FIELD overflow
51	Internal error

Error Number	Error Message
52	Bad file number
53	File not found
54	Bad file mode
55	File already open
57	Device I/O Error
58	File already exists
61	Disk full
62	Input past end
63	Bad record number
64	Bad file name
66	Direct statement in file
67	Too many files
68	Device Unavailable
69	Communication buffer overflow
70	Disk write protected
71	Disk not Ready
72	Disk media error
73	Advanced Feature
74	Rename across disks
75	Path/file Access Error
76	Path not found
77	Dead lock

Keyboard ASCII and Scan Codes

Scan Code	Keyboard Legend	ASCII Codes				Remarks
		Normal	SHIFT	CTRL	ALT	
01	ESC	01B	01B	01B	—	
02	! 1	031	021	—	X078	
03	@ 2	032	040	X000	X079	
04	# 3	033	023	—	X07A	
05	\$ 4	034	024	—	X07B	
06	% 5	035	025	—	X07C	
07	^ 6	036	05E	01E	X07D	
08	& 7	037	026	—	X07E	
09	* 8	038	02A	—	X07F	
0A	(9	039	028	—	X080	
0B	) 0	030	029	—	X081	
0C	— —	02D	05F	01F	X082	
0D	+ =	03D	02B	—	X083	
0E	BACKSPACE	008	008	07F	X08C	
0F	TAB	009	X00F	X08D	X08E	
10	Q	071	051	011	X010	
11	W	077	057	017	X011	
12	E	065	045	005	X012	
13	R	072	052	012	X013	
14	T	074	054	014	X014	
15	Y	079	059	019	X015	
16	U	075	055	015	X016	
17	I	069	049	009	X017	
18	O	06F	04F	00F	X018	
19	P	070	050	010	X019	
1A	[{	05B	07B	01B	—	
1B	] }	05D	07D	01D	—	
1C	ENTER	00D	00D	00A	X08F	(main keyboard)
1D	CTRL	*	—	—	—	
1E	A	061	041	001	X01E	
1F	S	073	053	013	X01F	

Scan Code	Keyboard Legend	ASCII Codes				Remarks
		Normal	SHIFT	CTRL	ALT	
20	D	064	044	004	X020	
21	F	066	046	006	X021	
22	G	067	047	007	X022	
23	H	068	048	008	X023	
24	J	06A	04A	00A	X024	
25	K	06B	04B	00B	X025	
26	L	06C	04C	00C	X026	
27	; :	03B	03A	—	—	
28	' “	027	022	—	—	
29	↑	X048	X085	X090	X091	
2A	LEFT SHIFT	*	—	—	—	
2B	←	X04B	X087	X073	X092	
2C	Z	07A	05A	01A	X02C	
2D	X	078	058	018	X02D	
2E	C	063	043	003	X02E	
2F	V	076	056	016	X02F	
30	B	062	042	002	X030	
31	N	06E	04E	00E	X031	
32	M	06D	04D	00D	X032	
33	, <	02C	03C	—	—	
34	. >	02E	03E	—	—	
35	/ ?	02F	03F	—	—	
36	RIGHT SHIFT	*	—	—	—	
37	PRINT SCREEN	*	*	X072	X046	
38	ALT	*	—	—	—	
39	SPACEBAR	020	020	020	X020	
3A	CAPS LOCK	*	—	—	—	
3B	F1	X03B	X054	X05E	X068	
3C	F2	X03C	X055	X05F	X069	
3D	F3	X03D	X056	X060	X06A	
3E	F4	X03E	X057	X061	X06B	
3F	F5	X03F	X058	X062	X06C	

Scan Code	Keyboard Legend	ASCII Codes				Remarks
		Normal	SHIFT	CTRL	ALT	
40	F6	X040	X059	X063	X06D	
41	F7	X041	X05A	X064	X06E	
42	F8	X042	X05B	X065	X06F	
43	F9	X043	X05C	X066	X070	
44	F10	X044	X05D	X067	X071	
45	NUM LOCK	*	—	—	—	
46	HOLD	*	*	*	*	freeze display
47	7 \	037	05C	X093	†	
48	8 ~	038	07E	X094	†	
49	9 PG UP	039	X049	X084	†	
4A	↓	X050	X086	X096	X097	
4B	4 |	034	07C	X095	†	
4C	5	035	—	—	†	
4D	6	036	—	—	†	
4E	→	X04D	X088	074	—	
4F	END 1	031	X04F	X075	†	
50	2	032	060	X09A	†	
51	3 PG DN	033	X051	X076	†	
52	0	030	X09B	X09C	†	
53	■ DELETE	02D	X053	X09D	X09E	
54	BREAK	000	000	*	X400	control break routine(INT 1BH)
55	+ INSERT	02B	052	X09F	X0A0	
56	■	02E	X0A1	X0A4	X0A5	(numeric keypad)
57	ENTER	00D	00D	00A	X08F	(numeric keypad)
58	HOME	X047	X04A	X077	X0A6	
59	F11	X098	X0A2	X0AC	X0B6	
5A	F12	X099	X0A3	X0AD	X0B7	

- * Indicates special functions performed
- means this key combination is suppressed in the keyboard driver
- X values preceded by “X” are extended ASCII codes (codes preceded by an ASCII NUL)
- † The **ALT** key provides a way to generate the ASCII codes of decimal numbers in the range 1 to 255. Hold down the **ALT** key while you type *on the numeric keypad* any decimal number in the range 1 to 255. When you release ALT, the ASCII code of the number typed is generated and displayed.

Note: When the NUM LOCK light is off, the Normal and SHIFT columns for these keys should be reversed.

ASCII Character Codes

ASCII Code	Character	Control Character
000	(null)	NUL
001	☺	SOH
002	●	STX
003	♥	ETX
004	♦	EOT
005	♣	ENQ
006	●	ACK
007	(beep)	BEL
008	■	BS
009	(tab)	HT
010	(line feed)	LF
011	(home)	VT
012	(form feed)	FF
013	(carriage return)	CR
014	♪	SO
015	⊙	SI
016	▶	DLE
017	◀	DC1
018	↕	DC2
019	!!	DC3
020	¶	DC4
021	§	NAK
022	—	SYN
023	⤵	ETB
024	↑	CAN
025	↓	EM
026	→	SUB
027	←	ESC
028	(cursor right)	FS
029	(cursor left)	GS
030	(cursor up)	RS
031	(cursor down)	US

Basic

ASCII Code	Character	ASCII Code	Character
032	(space)	070	F
033	!	071	G
034	''	072	H
035	#	073	I
036	\$	074	J
037	%	075	K
038	&	076	L
039	'	077	M
040	(	078	N
041	)	079	O
042	*	080	P
043	+	081	Q
044	,	082	R
045	-	083	S
046	.	084	T
047	/	085	U
048	0	086	V
049	1	087	W
050	2	088	X
051	3	089	Y
052	4	090	Z
053	5	091	[
054	6	092	\
055	7	093]
056	8	094	^
057	9	095	_
058	:	096	`
059	;	097	a
060	<	098	b
061	=	099	c
062	>	100	d
063	?	101	e
064	@	102	f
065	A	103	g
066	B	104	h
067	C	105	i
068	D	106	j
069	E	107	k

ASCII Code	Character	ASCII Code	Character
108	l	146	Æ
109	m	147	ô
110	n	148	Ö
111	o	149	ò
112	p	150	û
113	q	151	ù
114	r	152	ÿ
115	s	153	Û
116	t	154	Ü
117	u	155	€
118	v	156	£
119	w	157	¥
120	x	158	Pt
121	y	159	/
122	z	160	á
123	{	161	í
124	|	162	ó
125	}	163	ú
126	~	164	ñ
127	☐	165	Ñ
128	Ç	166	a
129	ü	167	o
130	é	168	ç
131	â	169	[
132	ä	170]
133	à	171	1/2
134	á	172	1/4
135	ç	173	i
136	ê	174	«
137	ë	175	»
138	è	176	≠
139	ï	177	≠
140	î	178	≠
141	ì	179	|
142	À	180	┴
143	Ä	181	≠
144	É	182	≠
145	æ	183	≠

ASCII Code	Character	ASCII Code	Character
184	„	220	■
185	„	221	■
186	„	222	■
187	„	223	■
188	„	224	α
189	„	225	β
190	„	226	Γ
191	„	227	π
192	„	228	Σ
193	„	229	σ
194	„	230	μ
195	„	231	τ
196	„	232	Φ
197	„	233	θ
198	„	234	Ω
199	„	235	δ
200	„	236	∞
201	„	237	\emptyset
202	„	238	ϵ
203	„	239	\cap
204	„	240	\equiv
205	„	241	\pm
206	„	242	\geq
207	„	243	\leq
208	„	244	Γ
209	„	245	\cup
210	„	246	\div
211	„	247	\approx
212	„	248	\circ
213	„	249	●
214	„	250	•
215	„	251	$\sqrt{\quad}$
216	„	252	η
217	„	253	2
218	„	254	■
219	■	255	(blank 'FF')

Notes

Notes

UNIT SPECIFICATIONS

System Unit

Processor: 8088

Size:

Length: 354mm (13.9 in.)
Depth: 290mm (11.4 in.)
Height: 97mm (3.8 in.)

Weight:

3.71 Kg (81b 4 oz) With 1 Diskette Drive

Transformer:

Input 110 Vac 60 Hz
Output to system Pin 1-17 Vac, Pin 2-GND, Pin 3-17 Vac

Environment:

Air Temperature

System ON—60 to 90 degrees F (15.6 to 32.3 degrees C)
System OFF—50 to 100 degrees F (10 to 43 degrees C)

Humidity

System ON—8% to 80%
System OFF—8% to 80%

Diskette Drive

Power:

Supply

Voltage	+5Vdc Input	+12Vdc Input
Nominal	+5Vdc	+12Vdc

Ripple

	+5Vdc Input	+12Vdc Input
0 to 50 kHz	100mV	100mV

Tolerance

	+5Vdc Input	+12Vdc Input
Including Ripple	+/- 5%	+/- 5%

Standby Current

	+5Vdc Input	+12Vdc Input
Nominal	600 mA	400 mA
Worst Case	700 mA	500 mA

Operating Current

	+5Vdc Input	+12Vdc Input
Nominal	600 mA	900 mA
Worst Case	700 mA	2400 mA

Environment:

Temperature

Operating 50 to 122 degrees F (10 to 44 degrees C)
Non-operating -40 to 140 degrees F (-40 to 60 degrees C)

Relative Humidity

Operating 20% to 80% (noncondensing)
Non-operating 5% to 95% (noncondensing)

RADIO SHACK

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