Texas
Instruments

TravelMate 3000 Computer
BatteryPro & Productivity
Software User's Manual

TravelMate 3000 Notebook Computer BatteryPro & Productivity Software User's
  Manual
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Changes may be periodically made to the information in this publication. Such changes
will be incorporated in new editions of this manual.

The equipment, as well as the programs that TI has created to use with them, are tools
that can help people better manage the information used in their business; but tools
including TI products-cannot replace sound judgment nor make the manager's business
decisions.

Consequently, TI cannot warrant that its products are suitable for any specific customer
application. The manager must rely on judgment of what is best for his or her business.

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Your new TravelMate™ 3000 Notebook Computer is delivered to you with exclusive Texas Instruments powersaving and productivity programs to help you use your computer. These programs are installed on the hard disk drive at the factory and are also provided on the *BatteryPro*™ & *Productivity Software* 3.5-inch floppy packed with your new computer.

Pioneered by Texas Instruments, the unique TravelMate 3000 BatteryPro utility package permits the TravelMate 3000 to use only the computer battery power required to do your work, preserving valuable battery power usually wasted by other portable computers. BatteryPro prolongs the battery charge life by performing complete power management and battery maintenance.

The Battery Watch ® utility in the package-fully described in Chapter 3 of this manual-measures and "learns" your personal variations in computer use habits through several full battery charge/discharge cycles.

Battery Watch also enhances battery life through its charge/discharge cycling feature-a recommended practice for nickel-cadmium (NiCad) batteries. Read Chapter 3 carefully to learn how to use Battery Watch, which can help you get the most working time from each battery charge.

> **Note:** **Windows™ 3.0 Users** - Please read the special instructions in Appendix A for use of Microsoft Windows (version 3.0) with the TravelMate 3000 utilities.

BatteryPro

The heart of the utilities provided with your TravelMate 3000 is the unique BatteryPro program that prolongs battery charge life through extensive real-time battery power management, conservation, and maintenance. The Battery Watch utility, an integral part of the BatteryPro package, monitors and displays battery power consumption.

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The BatteryPro programs provide your TravelMate 3000 the following battery power-savings benefits:

❑　　　　Active battery power savings for your application programs

❑　　　　Automatic and manually controlled low-power Standby mode

❑　　　　Battery maintenance through full charge/recharge cycles for optimum NiCad battery charge life

❑　　　　Automatic CPU (central processor unit) speed selection for your application programs

❑　　　　Battery Watch's real-time power monitoring display with updating every 3.8 seconds

❑　　　　Battery Watch's hot-key pop-up battery charge gauge display

TravelMate 3000 Power-Saving Methods

The computer's Standby mode increases the battery pack charge life by switching the computer to low power when you press the **Fn-F4** (Stndby) keys. The computer remains in the Standby mode until you again press the **Fn-F4** (Stndby) keys. The computer then resumes operation where you left off in your application program (you do not have to reload your program). The Standby feature saves the data in memory until the internal battery charge is exhausted, and BatteryPro continues to monitor power usage during the Standby mode.

The hard disk drive can be programmed to stop spinning after a preset period of inactivity and enter a low-power mode. It automatically returns to normal speed when your application program requests access to the hard disk or when you enter MS-DOS ®.

RPAL Palette Utility

BatteryPro utilities include the RPAL palette utility to enhance both the TravelMate 3000 LCD display or an external VGA monitor. The RPAL utility is a terminate-and-stay-resident (TSR) program, providing palette selection from a hotkey pop-up menu or from a disk file.

The RPAL utility enables you to preconfigure individual palettes for each of your application programs and save the palettes to hard disk. A Laptop Manager feature automatically loads the custom palette with the application program.

Shadow Cursor Utility

The Shadow utility is designed to enhance the visibility of the cursor on the TravelMate 3000 LCD display or an attached external VGA monitor. This utility enables you to configure cursor visibility for many of your application programs.

Other Utilities

The other utilities which complete the BatteryPro powersavings package include:

❑ The CACHE program improves hard disk drive performance and helps conserve battery power, particularly when you run application programs that access the hard disk often.

❑ The DATES program permits you to check the version number of the computer's internal firmware and the current power-savings level.

❑ The MODSCRN utility enables you to switch from the computer's built-in display to an external monitor and to turn on or off the display's backlight.

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- The SETCMOS utility enables you to save computer configuration data for each application program to a custom Me, precluding the need to run the Setup Program for each application.

- The SETPOWER utility enables you to change the current power-saving level maintained by the BatteryPro utility to maximize battery charge life in relation to the application program you are currently using.

- The SPEED program permits you to change the computer's CPU operating speed to conserve power when operating on batteries.

- The HELP utility displays online help screens for BatteryPro and its utilities.

- The DOSHELP utility displays online help screens for MS-DOS commands.

- The VGA HELP utility on the *VGA Software Utilities* floppy displays online help screens for VGA installation and operation of external monitors.

Another BatteryPro power-saving utility named CACHE conserves battery power by storing data accessed from the hard disk in a RAM area, greatly reducing the number of hard disk accesses. You can configure CACHE to save disk writes until the RAM is full before the system again accesses the hard disk.

You can set the LCD display's backlight to enter a lowpower mode after a preset period of keyboard inactivity. The LCD resumes normal display when you next press any keyboard key. BatteryPro monitors backlight power consumption, but cannot measure changes in brightness level you may make. (Lower brightness levels use less battery power.) However, using the Battery Watch Fast Tracking feature, BatteryPro can adjust to a constant brightness level. See Chapter 3 for details on calibrating power consumption using Battery Watch.

At the Setup Program you can set the LCD display's power consumption and resulting sharpness to reduce battery power consumption. BatteryPro monitors LCD power consumption and computes power savings based on the power level you set.

You can select CPU clock speeds to help reduce battery power consumption. BatteryPro monitors and computes power usage and savings based on the active CPU speed, and Battery Watch's status window shows you the power consumption and conservation status.

Productivity Utilities

The BatteryPro program package furnished with your new TravelMate 3000 also provides you the following programs to operate your computer and maintain your application programs and data files and directories.

❑ LM.COM (Laptop Manager)

❑ LFM.EXE (Laptop File Manager)

❑ RPAL.COM (resident palette utility)

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❑ CURSOR.COM and SHADOW.COM (cursor and typematic control utilities)

Laptop Manager

The Laptop Manager (LM) utility is supplied on your TravelMate 3000 hard disk as a standard user interface (shell) between MS-DOS and your application programs. LM is both a user convenience and a key interface to the BatteryPro power-savings and monitoring package. LM gives you quick, one-key access to your application programs and MSDOS management.

You can program LM to require a password to access MSDOS or any other application program you designate. LM provides one-key access to your application programs, or you can use a mouse to access the programs. The TravelMate 3000 can access the furnished Laptop File Manager utility and the supplied LapLink file transfer utility with a single keystroke.

Another feature of LM is its automatic loading of your grayshade palette selections for many of your application programs when you use LM to load your applications.

Laptop Manager is a key contributor to BatteryPro's power management features because LM enables you to control CPU clock speed and set the appropriate power-savings level for each application program you select via the LM main menu.

Laptop File Manager

The Laptop File Manager (LFM) utility is another timesaving feature, enabling you to quickly access and manage your files and directories without having to directly access MS-DOS. You can set up LFM to permit one-key access to your word processing program and one-key show-file capability. LFM also enables you to use the TravelMate 3000's built-in VGA display or an attached external VGA analog monitor in either 25- or 50-line text mode.

Preface

About This Manual

The information in this manual is presented mostly in independent chapters and sections so you can skip pages with information that you already know or that does not apply to your operating environment. Look at the top of each page to determine its major subject.

Keyboard keys are shown several ways in this manual, depending on the number of keys you must press to produce a character or function. Some keys on the keyboard are color coded to indicate their use only in conjunction with another key.

❑ If the instructions refer to the **Enter** key, simply press and release the **Enter** key.

❑ Some keys (for example, **Break** and **NumLk)** must be pressed in conjunction with another key (for example, **Ctrl** or **Fn).** The text in this manual refers to these keys according to their function, preceded by the additional key you must also press. For example, to toggle the number lock (Num Lk) feature through its modes, you must press and hold the **Fn** key, then press the **F7** key (**F7** is printed on the keytop; **NumLk** is printed on the key front).

❑ If the instructions refer to the **Ctrl-Alt-Del** keys, press and hold both the **Ctrl** key and the **Alt** key, press the **Del** key, and then release all three keys.

The word *type* means to press the appropriate alphabet and numeric keys to enter data. The word *enter* means to invoke a function or to initiate an action; for example, *to enter a menu* means to cause the computer to display that menu so you can perform some action.

The word *floppy* is used in this manual to refer to diskettes, microdiskettes, disks, and other terms commonly used to describe a removable, nonvolatile, magnetic-media diskette.

Preface

The words *disk* and *diskette* are used in direct quotations, for example, in describing a displayed error message, setup menu, etc.

To describe commands and other data you type at prompts, this manual shows uppercase (capital) alphabet characters for clarity. However, you may type all referenced alphabet characters in either uppercase or lowercase.

Symbols Used in This Manual

Note that several international symbols are used through-out this manual to advise you of important information.

This symbol indicates a **Note** concerning operating procedures or information you should know to help you operate your TravelMate 3000.

This symbol alerts you to a **Warning** or **Caution** that can prevent you from causing injury to yourself or damage to your equipment.

This symbol tells you that more information about the same subject is continued on the next page.

Contents of This Manual

Chapter 1 - Laptop Manager explains how to set up and use the Laptop Manager utility to access your application programs at the touch of a key.

Chapter 2 - Power Saving Utilities tells you about the BatteryPro power-saving utilities, including the Setpower, Speed, and Cache programs, that help your computer work the longest possible time on a battery charge.

Chapter 3 - Battery Watch explains how to set up and use two utilities that monitor battery power usage and report the amount of time remaining on the battery charge.

Chapter 4 - Display Utilities describes several utilities designed to enhance the cursor's appearance and modify the gray shades of the built-in display and colors of an external monitor.

Chapter 5 - Laptop File Manager describes how to use the furnished file manager program (LFM) to help you manage and manipulate your directories and data files.

Chapter 6 - VGA External Monitor Utilities explains the capabilities and operation of the furnished VGA software when using an external monitor. This chapter also includes technical data for programmers.

Chapter 7 - Other Utilities describes how to use several convenience programs plus the MS-DOS SMARTDRV diskcache utility.

Appendix A - Accessing the Utilities From Windows 3.0 tells how to install and use Microsoft Windows (version 3.0 or later).

Appendix B - Creating Help Displays explains how to create your own help displays.

An **Index** is included in the back of this manual to help you find your subject of interest.

Contents

1   Laptop Manager

2   Power Saving Utilities

3   Battery Watch

4   Display Utilities

Contents

This chapter tells you about

❑ How to use the Laptop Manager utility to supervise your application programs

❑ How to configure the Laptop Manager utility to load your application programs at the touch of a key

Contents

Laptop Manager Features

The Laptop Manager utility, furnished with your TravelMate 3000 Notebook Computer, is an application control program. Laptop Manager provides two submenus into which you can insert application programs you have installed on the hard disk. You can then load application programs from one of the submenus with one keystroke, and from the other submenu. using the arrow keys and the **Enter** key.

Laptop Manager (LM) enables you to specify unique operating parameters for each application program you install under its control, including the following.

❑ Fixed and prompted parameters that are passed to the application program as it loads

❑ Working directory

❑ Password protection, if desired, to any or all application programs

❑ Individual color palettes for each application program, if desired

❑ Power-savings level for each application program

❑ CPU processing speed for each application program

Using these features you can select the parameters and operating environment that maximize battery charge life and application program performance for each of your application programs you load under LM management.

Note: Do not confuse Laptop Manager (LM) described in this chapter with the Laptop *File* Manager (LFM) utility also furnished on your computer and described in Chapter 5 of this manual.

Laptop Manager Main Menu]

The Laptop Manager program is loaded onto your computer's hard disk at the factory and is furnished on the 3.5-inch *BatteryPro* & *Productivity Software* floppy. LM displays its main menu after the power-up and copyright messages are displayed when you turn on the computer.

The main menu enables you to select your application programs with a few keystrokes. Procedures for adding items to the Applications list and Quick Commands box are described later in this chapter.

Note: If your TravelMate 3000 is equipped with the optional Internal Modem, the left side of the LM main menu includes a modem control prompt instead of the logo shown in the figure.

Pressing the **F12** (Fn-F2) key at the Laptop Manager main menu loads the Change Menu screen. It enables you to add, delete, or modify items on the main menu. Procedures for using the Change Menu are provided later in this chapter.

Pressing the **Esc** key at the LM main menu returns computer control to MS-DOS and displays the MS-DOS **C:\>** prompt.

You can reload Laptop Manager at the MS-DOS **C:\>** prompt by typing

LM

and pressing the **Enter** key.

Quick Commands Box

Application programs you add to the Quick Commands box can be selected by pressing the function key you assign to it **(F1** to **F 11).** Instructions for installing your own application programs are provided later in this chapter.

For your convenience the following utilities are installed at the factory:

❑ **F1 -** Help screens you can page through to help you use various utilities, commands, and features

❑ **F2 -** (Laptop) File Manager utility described in Chapter 5 of this manual

❑ **F7 -** Save Config(uration) described under the SETCMOS utility in Chapter 7

❑ **F8 -** Reset Config(uration), which is part of the SETCMOS utility described in Chapter 7

❑ **F9 -** Cache Status described under the CACHE utility in Chapter 2

❑ **F10 -** Battery Watch described in Chapter 3

❑ **F11 -** LapLink III file transfer utilities, which enable your TravelMate 3000 to communicate with another compatible computer through an optional custom cable available from your TI distributor

You can delete any of the furnished utilities from the menu and replace them with your own application program(s) by using the Change Menu procedure explained later in this chapter.

Single-Character Quick Commands

At the bottom of the Laptop Manager menu Quick Commands box are two single-character commands:

❑   Pressing the **D** key (for *DOS* command) causes Laptop Manager to display a prompt at the bottom of the screen where you can enter MS-DOS commands of up to 67 characters. Pressing the **Enter** key starts the command. When the command is executed, pressing any key returns you to the Laptop Manager main menu.

Laptop Manager Change Menu

❑ Pressing the **P** key (for *path*) causes Laptop Manager to display a prompt at the bottom of the screen where you can change drives or directories. For example, you can change from the **C:** (root directory) to the **C:\UTILS** directory by pressing the **P** key, typing C:\UTILS, and pressing the **Enter** key.

You can change from the **C:** drive (hard disk) to the **A:** drive (floppy drive) by pressing the **P** and **A** keys in order, and then pressing the **Enter** key. Note that the **C:** prompt at the bottom left corner of the menu changes to the **A:** prompt.

Selecting Applications From the Applications List

After you have added your own application program names to the Applications list, you can select the program you want by using the uu and dd keys to highlight the application you want to load and pressing the **Enter** key. Laptop Manager loads your selection into memory for your use.

Adding Applications to the Menu

You can add your own IBM AT ™-compatible application programs to the LM main menu for easier access; you can also alter or move current menu items. After you have installed your own programs into the hard disk according to the instructions furnished with each program, you are ready to insert listings into the Laptop Manager menu.

You can insert the application program name into either the *Applications* list or the *Quick Commands* box. Insert the programs you use most often into the *Quick Commands* box for fast, one-key program loading. Put less frequently used programs and those requiring a longer name under the *Applications* list.

Quick Commands Program Setup Menu

You can set up your own Quick Commands selections to display on the Laptop Manager main menu as follows.

1. At the Laptop Manager main menu, press the **F12** (Fn-F2) key. Laptop Manager displays the following Laptop Manager Change Menu screen.

```
┌─────────────────────────────────────────────────────────────────┐
│ Laptop Manager-Change Menu v.n.nn              Tue Oct 15 12:15 pm │
│  ┌───────── Applications List ─────────┐  ┌─ Change Menu Commands ─┐ │
│  │                                     │  │                        │ │
│  │   Texas Instruments Incorporated    │  │  F1  - Help            │ │
│  │        TravelMate 3000       *      │  │  F2  - Insert Appl     │ │
│  │                                     │  │  F3  - Delete Appl     │ │
│  │                                     │  │  F4  - Modify Appl     │ │
│  │                                     │  │  F5  - Cut Appl        │ │
│  │                                     │  │  F6  - Paste Appl      │ │
│  │                                     │  │  F7  - Modify Fkey     │ │
│  │                                     │  │  F8  - Cut Fkey        │ │
│  │                                     │  │  F9  - Paste Fkey      │ │
│  │                                     │  │  F10 - Exit Password   │ │
│  │                                     │  │  F11 - Screen Colors   │ │
│  │                                     │  │  F12 - Save            │ │
│  │                                     │  │                        │ │
│  │                                     │  └────────────────────────┘ │
│  └─────────────────────────────────────┘                             │
│  C:\                                                      ESC = Exit │
└─────────────────────────────────────────────────────────────────┘
```

Adding Applications to the Menu

2. Press the **F7** key to get the Modify Function Key prompt at the bottom of the Setup menu.

Note: Press the **F1** key at the Laptop Manager Change Menu screen and at the Quick Command Program Setup screen for on-screen help.

---

3. In response to the *Modify Function Key* prompt, press the function key (**F1** through **F11)** you want to assign to your application program. For example, if you want to assign the **F1** key to your application program, press the **F1** key.

Laptop Manager then displays the following Quick Command Program Setup menu.

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│  ─────────────── Quick Command Program Setup - Fn ─────────────   │
│                                                                   │
│     Display String:   [                    ]                      │
│                                                                   │
│                                                                   │
│     Program pathname:   [                            ]            │
│     Parameter string:   [                            ]            │
│     Working Directory:  [                            ]            │
│                                                                   │
│     Password required? [ N ]   Password  [          ]            │
│     Use color palette? [ N ]   Filename  [          ]            │
│                                                                   │
│     Power savings level to use?........  [Current]               │
│                                                                   │
│     CPU speed during program execution?  [Auto   ]               │
│                                                                   │
│     Keep Laptop Manager resident?......  [ N ]                    │
│     Prompt after program execution?....  [ N ]                    │
│                                                           F1=Help  │
│                                                                   │
│   C:\                                                ESC = Exit    │
└─────────────────────────────────────────────────────────────────┘
```

The Quick Command Program Setup menu screen provides the following prompts to help you configure the Quick Commands box on the Laptop Manager main menu. Press the **Enter** key after you answer each prompt.

Display String

Type up to 15 alphanumeric characters (including spaces) on the *Display string* prompt line to identify the name you want displayed beside your selected function key on the main menu. For example, type

Word Processing

and press the **Enter** key. Thereafter, the phrase *Word Processing* will be displayed in the main menu Quick Commands box, opposite the function key number you selected.

You also can type line graphics characters to appear on the function key display (press the **F1** key for a list of graphic characters you can use). Press and hold the **Fn-Alt** keys and then type the three digits for each graphic character on the embedded numeric keypad (blue key fronts); then release the **Fn-Alt** keys.

If you have the Numeric Keypad option, you can enter the graphical characters directly by pressing and holding only the **Alt** key.

Program Pathname

In response to the *Program pathname* prompt, type up to 67 characters for your application program pathname. This is the command your application program tells you to use to load the program at the MS-DOS **C:\>** prompt.

For example, if your communication program (named *COMPROG)* is installed under the UTILs directory on the hard disk (drive C), to load the program you would type UTILS\COMPROG at the **C:\>** prompt. Therefore, you would type that same command at the Change Menu *Program pathname* prompt:

C:\UTILS\COMPROG

and press the **Enter** key.

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Adding Applications to the Menu

Note: The more complete your pathname, the faster Laptop Manager can find and load your program.

Refer to the *MS-DOS User's Manual* furnished with your computer for discussions of *paths, pathnames*, and *directories*. See your application program documentation for directions on how to install the program on the hard disk and what command to use to load the program.

Parameter String

The *Parameter string* prompt enables you to set up your menu so it does more than just call application programs. It also enables you to define parameters passed to the program when it is loaded.

For example, if your communications program requires a phone number as a parameter when the program loads, you would type the phone number at the *Parameter string* prompt.

As a result of the examples discussed here, your Quick Commands Program Setup menu might now resemble the following screen.

```
Laptop Manager - Change Menu vn.nn                    Mon Sep 18 4:40 pm
                    ─── Quick Command Program Setup - Fn ───
          Display String:  [ Communications Program ]

          Program pathname:   [ C:\UTILS\COMPROG         ]
          Parameter string:   [ 1-234-555-6789           ]
          Working Directory:  [                          ]

          Password required? [ N ]   Password  [          ]
          Use color palette? [ N ]   Filename  [          ]

          Power savings level to use?........  [Current]

          CPU speed during program execution?  [Auto  ]

          Keep Laptop Manager resident?......  [ N ]
          Prompt after program execution?....  [ N ]
                                                          ─── F1=Help ───
 C:\                                                          ESC = Exit
```

In addition, you can create a prompt to solicit a typed input that is passed to the application program as a parameter by using the string flag %S. In the previous sample menu, you would type the *Parameter string* as:

%S,"Enter phone number to call:"

When you press the selected function key, the prompt

Enter phone number to call: [   ]

displays at the bottom of the Laptop Manager menu. You can then type a phone number between the square brackets. When you press the **Enter** key, Laptop Manager loads the program into memory and passes the phone number to the program.

If you want the data you type in response to the prompt stored and used as a default value each time you load the program from Laptop Manager, you can use the buffer flag %A in the *Parameter string*. In the previous sample menu, you would type the *Parameter string* as

%S="%A","Enter phone number to call:"

With the buffer string in the *Parameter string*, the phone number you typed is saved in the %A buffer and used as the default value the next time you load the program from Laptop Manager.

You can use up to four optional parameter string buffers (%A, %B, %C, and %D); however, the %D buffer is assigned for use by the Laptop Manager single-character command D (DOS). You can use all four, but the information in the %D buffer will change every time you enter a string for either the application or the D (DOS) command.

Adding Applications to the Menu

Working Directory

A working directory is one that is currently in use. Many application programs require that the program reside in the current directory if it is not in the path. The *Working Direc*tory prompt enables you to change the working directory to meet the program's requirements.

This prompt's primary purpose is for use with application programs that use data files (for example, Lotus 1-2-3 ® , Microsoft Excel ® , and most word processing programs) so you can name the directory that stores the associated data files. For example, your word processing program might store data files under a directory you call LETTERS on the hard disk. Thus, your working directory prompt could be

C:\LETTERS

Note: If your application program does not need or use a data-file working directory, leave the Working Directory prompt absolutely empty; that is, be sure there are no spaces or anything else in the prompt field.

Password Required?

In response to the *Password required*? prompt, select *Yes* or *No* by pressing the **Y** key or the **N** key. If you choose not to use a password and the **N** key, the highlight skips the *Password* prompt.

Password

If you choose to assign a password, type up to 19 alphanumeric characters (including spaces) for the password you want to use. To protect the secrecy of the password you type, the characters are not displayed; asterisks are displayed. So carefully memorize your password and record it in a secure place.

Adding Applications to the Menu

If you change your mind and decide to delete the password (before exiting the Setup menu), press the **Del** key until all asterisks are erased.

> **Caution: Be careful if you decide to use a password. Once you assign a password, you have to use it every time you want to run the application program to which the password is assigned. This caution is particularly pertinent if you assign a password to the Exit to DOS function (the *Exit Password* - F10 - key choice on the setup menu). If you forget the password for this function, you cannot get the MS-DOS prompt or the Change Menu screen.**

Case is important in your password; to be accepted, a password must be typed exactly the way you entered it during setup. For example, if your password is all uppercase letters, you must type it that way to gain access to your program.

Use Color Palette?

If you have used the RPAL utility (described in Chapter 4) to create individual color or gray-shades settings for each of your application programs and stored them in data files, select Y(es) at the *Use color palette?* prompt and press the **Enter** key.

Then, at the *Filename* prompt, type the pathname of the palette data file associated with this application program and press the **Enter** key.

> **Note:** Your TravelMate 3000 UTILS directory has several color palette files configured at the factory as examples for use with individual application programs. These files end with the PAL extension (for example, the sample palette for Bitfax ™ is BITFAX.PAL). When you install your programs, examine the UTILS directory for available palette files.

Adding Applications to the Menu

Power Savings Level to Use?

Note: This prompt does not function if the BATTERY.PRO device driver is not included in the computer's AUTOEXEC.BAT file.

When operating your computer on battery power, some application programs work more efficiently and still conserve battery power at different power saving levels. If your programs are running satisfactorily at their current power savings level, choose the *Current* selection at the *Power savings level* to use prompt.

If you have determined, after reviewing "Real-Time Power Savings" in Chapter 2 of this manual, that a particular power savings level works best for this application program, press the **Space Bar** to select that level number (1 - 4). Or you can select 0 (zero) to disable the power savings feature.

CPU Speed During Program Execution?

In response to the *CPU speed during program execution*? prompt, select the system speed you want to use during program execution by pressing the **Space Bar** to toggle among *High, Low, and Auto*. Select *Low* for optimum battery-charge conservation. *Auto* uses high speed if the computer is on ac power or medium speed if the computer is on battery power. Your application program may specify a processing speed; check your application program documentation.

Keep Laptop Manager Resident?

If you want to keep the Laptop Manager program in memory (resident) while your application program is running, select Y in response to the *Keep Laptop Manager resident?* prompt. You may not want to keep Laptop Manager resident when executing large programs; it uses approximately 130 KB memory space the application program may need.

You may want to select Y if you are running an application program that does not use the entire memory and if you want to avoid wasting the time needed to reload Laptop Manager from the disk after running your application. Laptop Manager uses only 2.5 KB memory if not resident.

Prompt After Program Execution?

In response to the *Prompt after program execution*? prompt, select Y if you want Laptop Manager to display the following prompt when you exit your application program:

Press any key to return to Laptop Manager

If you select N, the Laptop Manager main menu automatically returns with no prompt when you exit your application program.

Exiting the Quick Command
Program Setup Menu

When you complete all your Quick Command Program Setup menu selections, press the **Esc** key. Laptop Manager prompts you at the bottom of the screen:

Keep changes? [Y]

In response to this prompt, press the **Enter** key, **Esc** key, or **Y** key if you want to keep your changes or additions. Press the **N** key if you want to exit the Quick Commands Program Setup menu without keeping the changes you just made. In either case the Laptop Manager Change Menu returns.

At this point you can either select another Quick Command to program or press the **Esc** key to exit the Change Menu. If you made changes and previously elected to keep the changes, Laptop Manager again prompts you at the bottom of the screen:

Save changes? [Y]

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Adding Applications to the Menu

In response to this prompt, press the **Enter** key, **Esc** key, or **Y** key if you want to keep your changes or additions. Press the **N** key if you want to exit the Change Menu without saving the changes you just made. In either case the Laptop Manager main menu returns.

Testing Your Menu

At the Laptop Manager main menu, test your new application program setup by pressing the newly assigned function key. Does it load the application program for you? If you get an error message, press the **F12** key, the **F7** key, and the newly assigned function key again. Check your entries for correctness. Make sure you specified the correct pathname and working directory and that the color palette file exists.

You can add both information display strings and application programs to the Laptop Manager Applications list in the Laptop Manager main menu.

Adding Items to the Application

The procedure for adding items to the Application menu is the same as described previously for the Quick Command Program Setup menu, except you can use several function keys to insert, delete, modify, or cut and paste an item. On the Applications list, you must also designate whether the item is for display only or is to run an application program. Press the **Space Bar** at the *Application Type* prompt on the Application Setup menu to select *Display Only or Application*.

In other respects, the Application Setup menu works the same as the Quick Command Setup menu. You can enter up to 42 characters in response to the *Display string* prompt. If you need more space to enter a label or title than is available on one Display string prompt line, you can leave the *Application Type* prompt set to *Display only*, enter the fine of type you want to have displayed, and move down a line at time, inserting lines by pressing the **F2** key (Insert Application) for each line you want to insert. When finished inserting lines, toggle the *Application Type* prompt to *Application* by pressing the **Space Bar** when you get to the line on which you want to have Laptop Manager run the application program.

Note: If you press the ↓ key when the highlighted item is at the bottom of the Application List, the Change Menu automatically appears for you to create another entry.

You can continue inserting entries-at the beginning, end, or between existing lines-in your Applications List up to a total of 255 lines. After you insert the seventeenth line, succeeding lines require you to use the **PgDn** or **PgUp** keys (or the ↑ and ↓ keys) to view all lines on your list.

Changing LM Menu Colors

Pressing the **F11** key at the LM Change Menu causes LM to display the *Screen Color Setup* menu where you can change the colors of the LM menus displayed by a color monitor connected to your TravelMate 3000. This menu also affects the gray shades displayed by your built-in LCD screen.

The menu is self-explanatory and also provides a Help display to assist you.

Power Saving Utilities

This chapter tells you about

❏ How to operate your computer to get the most work from a battery charge

❏ BatteryPro, which controls computer battery power levels for optimum power savings; and the Setpower program that enables you to reset the BatteryPro power levels

❏ CACHE and SMARTDRV.SYS, two hard disk drive performance and battery power-saving enhancement programs

❏ SPEED, which lets you change CPU operating speed for optimum performance and battery power savings

Note: If you have not already read the **Read Me First** section at the beginning of this manual, please do so before reading this chapter. You will gain a better understanding of the entire battery power-saving software package.

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Optimizing Battery Operation

Your TravelMate 3000 Notebook Computer is furnished with three types of power-saving features to enable you to get the most work from a battery charge. When operating your computer on battery power, the computer does the following.

❑ Lets you manually turn off the computer's display and hard disk drive and induce a low-power Standby mode

❑ Automatically turns off the display and hard disk drive after a specified period of keyboard inactivity

❑ Automatically saves power, in real time, while running your application programs, depending on the program and the power-saving level you select

Manual Standby Mode

Pressing the **Fn-F4** (Stndby) keys sets the TravelMate 3000 to the Standby mode, in which the display and hard disk drive are turned off and the computer enters a low power consumption mode. In the Standby mode the green **Power** indicator above the keyboard turns orange.

Since this mode consumes the least battery power, use it when you must leave the computer for several minutes to attend to another duty, and you do not want to update files and turn off the computer.

To resume normal operation, press the **Fn-F4** keys again.

Automatic Control of the Display and Hard Disk

Your TravelMate 3000 display turns off automatically after a period of no keyboard activity. You can change the factoryset period of 2 minutes at the Setup Program described in the *TravelMate 3000 Notebook Computer User's Manual*. Pressing any key-preferably the **Shift** key-turns on the display again.

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Optimizing Battery Operation

Even though Your application program requires heavy keyboard activity (keeping the display on), you should use the factory-default 5-Minute Setup Program *Power Savings, HDD Motor Off* settings. This turns off the hard disk drive when not needed, as is the case, for example, when you type data into a spreadsheet.

However, if you use a mouse with your TravelMate 3000, You should consider setting the *Backlight off* item to *Always On* at the Setup Program, Page 2, to prevent the display from going blank when there is no keyboard activity.

The computer's hard disk drive turns off automatically after a period of no hard disk access. You can change the factorydefault 5-minute period using the computer's Setup Program (see your *User's Manual*). Any function requiring hard disk access turns on the hard disk drive again.

Note: When the hard disk drive is off, remember that a slight delay for the disk drive to reach operating speed occurs before it performs your command.

Some word processing and file editing programs periodically save your work to a back-up file automatically, causing frequent access to your hard disk. This could use more power than leaving the hard disk always on. With such programs, set the Setup Program *Power Savings* category items to higher values. If you find that the hard disk stays on too much even when you are not accessing it, try a lower setting, such as 1 minute.

Real-Time Power Savings

Your computer has a special power-saving feature that can activate in real time while you are running your application program. This feature is implemented by a special device driver called BATTERY.PRO in the CONFIG.SYS file of the following form.

DEVICE=C:\UTILS\BATTERY.PRO [/Ln] [/An] [/V]

Where:

/Ln specifies the power-savings level (0 through 4) described in the next section of this chapter. If the /Ln option is omitted, the default value of 2 is used.

/An selects whether or not BatteryPro is on while the computer is operating under ac power. The AO option turns off BatteryPro during ac operation; Al turns on BatteryPro. If the /An option is omitted, the default value of 0 (off) is used.

/V provides a visual indication that power-savings are occurring by turning the normally green **Power** indicator light to orange. In operation, the **Power** indicator will change to and from orange and green. If the /V option is omitted, the **Power** indicator light always glows green.

Power-Saving Levels

The power-saving level you should use to optimize battery charge life depends on the operations you are performing and how the application program is written.

For example, Microsoft software typically is written to include significant idle states, resulting in power savings even at level 1. Lotus software yields little power savings at level 1, but performs well at level 2 or 4, reducing power consumed by frequent disk access.

Programs that work well at level 2 sometimes work even better at level 4. For example, Lotus 1-2-3, version 3.0, works better at level 4 because version 3.0 accesses the disk more often than other versions of Lotus.

BatteryPro's power levels generally do not conflict with most available application programs. However, some applications may fail or suffer performance problems. Try your programs at the highest level and evaluate their performance. If undesirable problems occur, simply try the next lower level until performance is satisfactory. (Note that level 0 disables power savings.)

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Optimizing Battery Operation

For example, Traveling Software's LapLink program runs well at level 4, but will not allow self-installation at any level except 0. The Lotus PrintGraph utility prints correctly at all levels, but you may find the reduced performance at levels 2 through 4 unacceptable. You also may not like serial printer performance at the higher levels.

The power-saving levels, 0 through 4, used by the BatteryPro and Setpower programs are defined as follows.

Level 0

Level 0 (zero) disables the battery power-saving feature. BatteryPro performs no real-time power savings.

Level 1

Level 1 conserves battery power when the processor is idle, for example, when waiting for keyboard activity and device input/output. Level I features are also active in levels 2 through 4. For example, Microsoft Excel and Windows perform well using level 1. Operating system enhancement programs such as DESQview™ also work well at level 1.

Level 1 is the highest level you can use without affecting processor performance using Lotus PrintGraph or serial printer interfaces.

Note: Some application programs such as Lotus 1-2-3 do not use the Standby mode for keyboard and other devices inactivity. You must use a level higher than 1 to conserve battery power during keyboard activity.

Level 2

The factory default, level 2, induces more idle time between keyboard activations and MS-DOS access. Performance is degraded slightly, but the difference should be unnoticeable. This level is the optimum compromise between program performance and battery charge life.

Optimizing Battery Operation

Most available application programs work well at level 2, for example, Lotus 1-2-3 and Microsoft Paint Brush ® , Word, and Works. Many programs that work well at level 1 also work well at level 2 (for example, Microsoft Windows 3.0).

Level 3

Level 3 induces less idle time in the keyboard and MS-DOS access areas than level 2 but induces idle time in hard disk and video input/output. This level saves more power overall with application programs that access the hard disk often.

Programs with high disk read/write rates increase battery power consumption. Level 3 "smooths" disk read/write power consumption over longer access periods, thus reducing peak power needs. Using level 3 (and level 4) permits more frequent disk access while using little more power than Standby disk mode.

Note: Generally, use level 3 only if level 4 is not acceptable. Try level 4 first. Levels 3 and 4 function identically, except for the increased power savings of level 4.

Level 4

Combining all techniques used by the lower levels at a slightly higher value, level 4 produces the highest power savings. This level also affects performance more than the other levels, but you will not notice this with most application programs.

Optimizing Battery Operation

AC Power Savings

To ensure optimum performance during ac operation, your TravelMate 3000 is shipped from the factory with the BATTERY.PRO /An option set to turn off power savings during ac operation. However, if you turn on the power savings using the /Al option in the CONFIG.SYS file (see 'Real-Time Power Savings' earlier in this chapter), your computer automatically increases to fast charge if operating current falls below 1700 mA. This feature works in this manner when the computer is in the Standby mode and, depending on your usage and your application program, other times as well.

Turning on both power savings and the /V option during ac operation also permits you to visually test an application program at various power levels to determine the optimum level for battery operation. That is, the more the **Power** indicator light changes to orange from green, the more efficient the power-savings features are working.

Battery Charge Monitor

The Battery Watch program furnished with your computer, although not a power-saving utility, is designed to estimate the charge level remaining in the computer's battery and to measure the power saved by the BatteryPro utilities.

The Battery Watch utility displays the active power-savings level for 3.8 seconds on its Status window. The value can be used to measure the power savings resulting from the four power-savings levels. See Chapter 3 of this manual for details on the Battery Watch utility.

Optimizing Battery Operation

Display Backlight Power Savings

The LCD backlight is one of the hungriest power users in the computer. Reducing the LCD brightness control level even a small amount significantly reduces power usage. Always set the brightness control to the lowest comfortable brightness level, especially in low ambient light conditions (for example, on an airliner where longer battery charge life is important).

After you set the brightness control, be sure to enter the approximate value into the Battery Watch *Estimated Time to Empty* menu's *(B)acklight* prompt. The Battery Watch utility cannot determine where you have set the computer brightness control; you must tell it as described in Chapter 3.

SETPOWER Utility

Using BatteryPro's Setpower utility, you can also set the power-savings level at any MS-DOS prompt. For example, at the C:\> prompt you can type

SETPOWER /Ln

where n is the power -saving level (0 through 4) you want to use. You can also include this command line in any batch file (AUTOEXEC.BAT) you create to load an application program. Laptop Manager will automatically respond to this command if you configure an application program using Laptop manager's *Change Menu* feature.

Note: Setpower and all other BatteryPro utilities furnished with your TravelMate 3000 are loaded on the hard disk at the factory under the UTILS directory with the MS-DOS PATH command already in the AUTOEXEC.BAT file.

If you want to know the current and maximum power levels, at the **C:\>** prompt type

SETPOWER /S

and press the **Enter** key. Setpower displays the current setting, 0 through 4, and the maximum available setting.

CACHE Utility

The CACHE utility stores copies of recently used hard disk sectors in RAM or Extended/Expanded memory. In operation, CACHE intercepts disk access requests and stores them in system memory (RAM), EMS memory, or extended memory.

Note: Also see the simpler SMARTDRV.SYS disk-caching utility described in this chapter.

Your application program can access the RAM more quickly than it can access the hard disk, thus improving the application's performance. Because it greatly reduces the quantity of disk accesses, CACHE also contributes to conserving battery power.

You can specify read caching or read/write caching. If you select read caching, all write operations are written immediately. If you select read/write caching, both read and write operations are cached, but write operations are performed **only** when buffers are full.

If you specify read/write caching, a FLUSH option is also available. The FLUSH option writes all. cached data to the hard disk, ensuring you do not lose data if you turn off the computer.

Cache Switches
You can load the CACHE utility with the following switches.

CACHE[nnnn] [/t] [/R] [/W] [/W=nnn] [/B=nn] [/Nd]

where:

nnnn specifies the size of the cache buffer you want to create in K bytes (1024).

t specifies the memory type to use, E for extended memory, V for EMS memory, and S for system memory.

R specifies that the cache supports only read caching-, this is the default if an **R** or **W** parameter is not included.

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CACHE Utility

W specifies that the cache supports both read and write caching; see "Write Caching" later in this section before using this parameter.

W=nnn specifies that the cache support both read and write caching to the maximum of **nnn** number of writes that can be saved and written later, the default is 100. See 'Write Caching" later in this section.

B=nn specifies the number of sectors per logical cache block; **nn** must be 1, 2, 4, 8, or 16. The default is 2. The block size determines the number of sectors read each time data is saved in the cache. Different values may affect the speed of caching, depending on the data being read.

Nd specifies a physical hard disk which should not be cached. Normally all drives are cached; Nd (where d is the drive letter: A: or C:) can be specified to inhibit caching specific drives. For example, **/N1** causes the cache to save data from drive 0, but not from drive 1. Note that the cache program saves data on physical drives rather than logical drives (A and C); a physical drive may have been divided into multiple logical drives. Generally, your hard disk is drive 1. See your *MS-DOS 4.01 User's Manual* for more information on physical and logical drives.

Cache Options

In addition to the loading options, CACHE can execute several other options after CACHE is loaded. To use these options, at the MS-DOS **C:\>** prompt type

CACHE [option]

and press the **Enter** key.

Cache LIMIT=nn Option

The LIMIT=nn option specifies the size of the transfer limit. If a disk transfer is larger than the transfer limit, the data win not be cached. This prevents large programs from "thrashing," which uses a considerable portion of cache memory. The LIMIT option also reserves the cache for smaller transfers.

The default transfer limit is 24 sectors. If no limit is specified, (for example, CACHE LIMIT), the limit is set to "None" and all disk accesses are cached.

Cache STATUS Option

The STATUS option displays the current status of the CACHE program.

Cache ON Option

The ON option turns on the CACHE program.

Cache OFF Option

The OFF option turns off the CACHE program.

Cache FLUSH Option

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Caution: Do not turn off the computer if write caching is enabled and the cache is not Bushed.

The FLUSH option "flushes" (writes to the hard disk) all sectors that have not yet been written to the hard disk. This occurs automatically if you press the **Ctrl-Alt-Del** keys to reboot the computer.

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CACHE Utility

Write Caching

If you enable write caching when you load the CACHE program, data written to the cache is saved and written when the computer is not accessing the hard disk. This enables an application program to write many times to the same sector before the sector is actually written to the disk. The maximum number of cache blocks that can be saved before they are written is specified by the **/W=nnn** parameter you specify when loading the CACHE program. If you do not specify a value, I 00 writes are allowed.

After your application program completes its read/write operations, the CACHE program waits about 2 seconds and then it flushes its write buffers. CACHE then writes in background while the application program continues to run. CACHE writes approximately 10 blocks per second; therefore, CACHE takes about 10 seconds to write 1 00 default blocks to the hard disk. The larger the number of write blocks you specify to the **/W=nnn** parameter, the more time required to flush the write buffers.

Write Error Handling

If an error occurs while CACHE is writing its buffers to the hard disk, CACHE sounds a long beep, followed by two short beeps. CACHE then is disabled and subsequent read/write operations are not cached. If you hear the beeps or suspect an error, at the MS-DOS **C:\>** prompt type

CACHE STATUS

and press the **Enter** key.

The status display shows whether an error has occurred and the head, track, and sector where it occurred. Data has been saved in the cache, so you should back up any files you think may have caused the error.

After you do the back up, at the MS-DOS C:\> prompt type

CACHE FLUSH

and press the **Enter** key.

CACHE then attempts to again write the cache buffers. After the flush, you can again enable caching by typing at the MS-DOS **C:\>** prompt

CACHE ON

and pressing the **Enter** key.

Cautions When Using Write Caching

Do not use write caching unless you adhere to the following rules. The rules *apply only to write* caching, not to read-only caching. if you do not follow these rules, you can lose some or all your hard disk data.

❑ **Do not turn off or reboot your computer until CACHE completes writing its buffers to disk. CACHE will intercept the Ctrl-Alt-Del key sequence and Bush before allowing the computer to reboot, but it is still wise to wait until flushing completes before rebooting.**

❑ **Do not use write caching if you use programs that may cause the computer to hang or reboot. This includes misbehaving resident programs or operating environments. If you are debugging software, do not use write caching.**

❑ **Do not use write caching if your computer is not operating properly or frequent power losses occur.**

❑ **Do not use write caching if your hard disk is not operating properly.**

SMARTDRV.SYS Disk Caching Utility

The SMARTDRV.SYS utility is a disk-caching program that reduces the time and power the computer needs to read data from the hard disk drive.

Note: Also see the more sophisticated CACHE utility described in this chapter.

SMARTDRV.SYS works best if you use many applications and files at one time. It is particularly effective when the computer runs multiple application programs that require swapping, that is, copying applications to and from the hard disk drive to make room for all the applications in memory.

Note: Do not use SMARTDRV.SYS with any other disk-caching or RAM drive utilities.

Installing SMARTDRV.SYS

The SMARTDRV.SYS utility works best with expanded memory, but it also works well with extended memory. Since the TravelMate 3000 provides both extended and expanded memory, assign SMARTDRV.SYS to extended memory and reserve expanded memory for other applications.

To install SMARTDRV.SYS, add the following line to your CONFIG.SYS file:

DEVICE=[d:] [path] SMARTDRV.SYS [size] [/A]

SMARTDRV.SYS Options

This device driver accepts the following options.

size is the amount of memory you want SMARTDRV.SYS to use; 256 KB is the default value if installed in extended memory or all of expanded memory if installed there. If you intend to run an application program that uses expanded or extended memory, specify a size that leaves enough memory for the application.

/A assigns SMARTDRV.SYS to expanded memory. If /A is omitted, SMARTDRV.SYS uses extended memory.

SMARTDRV.SYS Disk Caching Utility

Example 1 - This command line assigns 1024 KB of expanded memory to SMARTDRV.SYS:

DEVICE=SMARTDRV.SYS 1024 /A

Example 2 - This command line assigns all expanded memory to SMARTDRV.SYS:

DEVICE=SMARTDRV.SYS /A

SPEED Utility

The SPEED utility enables you to set the cur-rent CPU operating speed to low, medium, or high. Your TravelMate 3000 computer can operate at 8 MHz, 10 MHz, or 20 MHz. However, because the faster speeds consume more power, you may want to select the low or medium speed to conserve power when you are operating the computer on its internal battery.

Note that you also can change CPU speed at the TravelMate 3000 Setup Program *Power Savings* category. See your *TravelMate 3000 Notebook Computer User's Manual* for details.

Show Speed Option

The SPEED command S(how) option displays the current CPU speed setting if you type at the MS-DOS **C:\>** prompt

SPEED /S

and press the **Enter** key. The program displays

CPU speed is set to [High, Medium, or Low]

Using the SPEED Utility

You can set the CPU speed to low, medium, or high by typing at the MS-DOS **C:\>** prompt

SPEED [/L] [/M] [/H]

and pressing the **Enter** key. The L option sets CPU speed to low, M to medium, and H to high. The program responds to the command by displaying

Set CPU Speed v386SX-A.N.NN.N.NN

Copyright (c) 1990 Texas Instruments Incorporated

Current CPU speed is set to [Low, Medium, or High]

This chapter tells you about

❑ Battery Watch, the program that monitors your computer's battery power consumption

❑ How to configure Battery Watch to help you get the most computer work on a battery charge

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About Battery Watch

The NiCad battery pack in your TravelMate 3000 Notebook Computer supplies an even, level voltage all the way to full discharge. This means the batteries do not fade gradually but, as a consequence, the battery pack cannot power the computer for more than a few minutes after the **Low Batt** indicator light first comes on.

A special version of the Battery Watch utility developed by Traveling Software, Inc. is furnished with your TravelMate 3000. Battery Watch helps you by calculating the charge remaining in your battery. Using Battery Watch, you should never again be surprised by a low battery.

Battery Watch is a TSR (terminate and stay resident) program, meaning it runs in background all the time, monitoring your computer and keeping track of how much battery charge remains. Although it uses only 16 KB of RAM, Battery Watch monitors all aspects of your computer's hardware operation. Battery Watch 'knows' which components your computer has and, because it also knows how much power each component consumes, Battery Watch can estimate the current charge in the battery.

Every 3.8 seconds Battery Watch checks to see which of the computer's components (floppy drive, display, modem ...) are in operation and then recalculates how long your battery can operate at the current or average rate of power consumption.

Battery Watch also features Smart Tracker, which automatically adjusts itself to your computer battery's actual charge capacity and your use habits over several charge/discharge cycles.

And Battery Watch provides a *deep discharge* feature to help you condition the NiCad battery pack to its maximum charge-retention capacity. (See 'Deep Discharge" later in this chapter.)

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About Battery Watch

TI's special version of Battery Watch offers the following unique features not available with the standard Battery Watch program:

❑ Integration into the TravelMate 3000 BatteryPro utilities system

❑ Increased capabilities to monitor power consumption along with enhanced accuracy

❑ "Knowledge" of TravelMate 3000 options with automatic detection of power consumption

❑ *Average* (AVG) or *Current* (CUR) power drain calculations to forecast 'Time to Empty"

❑ Automatic calculation of BatteryPro's active power savings shown on a status display that includes current drain, average drain, and BatteryPro savings

❑ Automatic detection of fast charge and trickle charge rates

❑ Backlight power drain selections for better LCD screen power monitoring

Note: The Battery Watch pop-up menus are intended for use only with text application programs and do not display with graphic applications such as Microsoft Windows (see Appendix A), Ventura Publisher ® , and the graph display within Lotus 1-2-3. However, Battery Watch and the warning beeper still work while these programs are running.

Battery Watch does *not* measure the charge in your battery! Such a measurement would not be informative though, because you still would not know how long the charge would last.

When you turn on your computer for the first time, Battery Watch uses the battery manufacturer's stated capacity for the battery. Every 3.8 seconds, Battery Watch recalculates the power consumption in your computer-based on which components are in use *at that particular moment*. Battery Watch uses its built-in figures to estimate how much each active component is draining the battery.

Finally, Battery Watch averages all its recalculations since being loaded in the current session and uses that average to forecast how long the battery charge will last while consuming power at the same rate. Battery Watch displays this average as *AVG Drain* on the STATUS display. The power consumption at that particular moment is displayed as *CUR Drain*.

You should always have Battery Watch loaded while your computer is on. If Battery Watch is inactive, it cannot record any changes in the computer's power consumption. And the next time you load the program, it will "remember" a higher charge level in your battery than actually exists. You also should occasionally *condition* (completely charge and then discharge) your battery so that Battery Watch can learn the actual capacity of the battery.

Calibrating Battery Watch

Your computer is a precision electronic device comprising a large number of components; however, the power consumption of components can vary as much as 10 Percent and still be within specification. These variations can affect power consumption calculations. In addition, individual batteries vary in capacity, charge rate and other factors that add to the differences among computers.

Although Battery Watch can determine from the BatteryPro device driver the rated capacity of the battery and anticipated use factors for the components, these values are only approximate. To achieve a more precise estimate of battery charge, you must calibrate Battery Watch to your computer.

Installing and Removing Options

Any time you add or remove an optional hardware device to your computer, you should recalibrate Battery Watch as follows.

1. At the MS-DOS **C:\>** prompt type

BW UN

and press the **Enter** key. This command "uninstalls' Battery Watch.

2. Then type

BW UN

and press the **Enter** key. Then press the **Y**(es) key to the "Has the battery been fully charged?' prompt.

Battery Watch can now get the factory defaults for the new options from the BatteryPro device driver. The factory defaults represent the upper power consumption range for each component. As you use your computer, Battery Watch, using its Smart Tracker features, "learns" the actual consumption and adjusts its calculations accordingly.

Calibrating Battery Watch

BatteryPro uses the minimum charge level as the initial battery capacity for a new battery. As you use your computer, the power savings of component variation is added to the battery capacity along with any higher charge level your battery can absorb. Of course, as your battery weakens with age and use, any charge level loss is subtracted from the total capacity.

Installing Battery Watch

The Battery Watch files are installed on your TravelMate 3000 at the factory, including the appropriate AUTOEXEC.BAT line to load Battery Watch when you turn on your computer. If you ever have to rebuild the files on your hard disk and manually reinstall Battery Watch, you must copy the Battery Watch file to your hard disk and add a line to the AUTOEXEC.BAT file as described below.

Copying Battery Watch to Your Computer

The Battery Watch program, BW.COM, is included on the *BatteryPro & Productivity Software* floppy furnished with your TravelMate 3000. Insert the *BatteryPro & Productivity Software* floppy into the floppy drive and copy the BW.COM file to your hard disk (drive C) using the MS-DOS COPY command or the furnished Laptop File Manager program.

Modifying the AUTOEXEC.BAT File

To work best, Battery Watch should always be running in background whenever you use your computer. If you do not modify your AUTOEXEC.BAT file for Battery Watch as shown below, you must manually load the program each time you turn on or reboot the computer.

To ensure that Battery Watch is always loaded while you are using your TravelMate 3000, be sure your AUTOEXEC.BAT file includes this line:

BW

To modify the AUTOEXEC.BAT file, use your word processor or the MS-DOS COPY CON command (see 'The AUTOEXEC.BAT File") in your *MS-DOS User's Manual*).

Note: If you copied BW.COM to any but the root directory, include the full path of the directory in front of BW. For example, if BW.COM is under the UTILS directory, include the line C: \UTILS \BW in your AUTOEXEC.BAT file.

The first time you load Battery Watch, it is important to start with a fully charged battery to improve accuracy. Once Battery Watch **is** loaded, you can run other programs and still call up Battery Watch whenever you want-even from within most other programs.

You can run Battery Watch one of two ways: automatically from the AUTOEXEC.BAT file or manually from MS-DOS. Use the following procedure to load the full Battery Watch program.

Loading Battery Watch Automatically

If you have modified your AUTOEXEC.BAT file for Battery Watch as described previously in this chapter, it will load automatically when you turn on your computer or press the **Ctrl-Alt-Del** keys to restart the computer.

Loading Battery Watch Manually

To load Battery Watch manually, change to the directory in which the BW.COM file resides, type

BW

and press the **Enter** key.

The Loading Process

Whether you load Battery Watch automatically or manually, the following message appears as Battery Watch loads.

```
╔══════════════ FULL BATTERY CAPACITY ══════════════╗
║                                                    ║
║    Has the battery been fully recharged? (Y/N)     ║
║                                                    ║
╟────────────────────────┬───────────────────────────╢
║[ESC] Don't load BW      │ Press Y or N as appropriate.║
╚════════════════════════┴═══════════════════════════╝
```

Loading Battery Watch

If you have recharged your battery since the last time Battery Watch loaded and if the AC Adapter's green (and not the amber) indicator light is on, press the **Y** key before the message disappears. Then refer to 'Designating initial Battery Capacity' in the next section.

If You wait more than 15 seconds to press a key, or do not press the **Y** key, or if you press **Enter** key, Battery Watch displays the message:

BATTERY WATCH is now resident.
Version N.NN, Copyright 1988-1990, Traveling Software, Inc.
Press ALT-SHIFT-B to display window.

The last line explains that you can load the *Estimated Time to Empty* menu by pressing the **Alt-Shift-B** keys. This menu shows an estimate of how much time is left in your battery. Refer to "Using the Time to Empty Menu" later in this chapter for details on this menu.

FULL BATTERY CAPACITY Menu

If you press the **Y** key when prompted at startup, the computer displays the *FULL BATTERY CAPACITY* menu.

```
================= FULL BATTERY CAPACITY ==============

  Battery Watch will use your average battery life
  unless you tell it to go back to using factory
  capacity.

  Your average is:  100% of factory capacity.

  Do you want to return to FACTORY capacity
  (default is NO)? (Y/N)
 _____|_____
  [ESC] Don't load BW          | Press Y or N as appropriate.
```

Loading Battery Watch

You can use the following keys at this menu.

Y   Factory Capacity-use only as a starting point, or when you begin using
                   Battery Watch, replace the battery, or notice that the Battery Watch
                   time estimates are losing accuracy.

N, Enter,   Permits Battery Watch to perform the running
(or wait 15   average calculations that determine the
seconds)   battery's average charge life. The calculations are continuously
                   updated every time the last battery operation run time is within the
                   specified threshold percentage.

Note: Battery   Watch discards any run times less than the threshold percentage and
ignores them when calculating average run times. The factory default threshold
percentage is 90 percent, but you can change this value using the Battery Watch
OPTIONS menu described later in this chapter.

Keeping Battery Watch Up to Date

When you use Battery Watch for the first time, Battery Watch begins with the rated capacity of the battery (the factory capacity). If you want more accuracy, you must help Battery Watch adjust the factory capacity to the *actual* capacity.

The factory capacity value may not yield accurate Battery Watch readings for the following reasons.

❑ Factory capacity is the *average* capacity of all batteries of the same model, but variances in manufacturing mean that the capacity of *your* battery may be higher or lower than the average.

❑ The power consumption of the components in the computer vary from machine to machine.

❑ Like any batteries, NiCad batteries gradually lose the ability to hold a charge.

❑ Screen brightness levels vary from user to user and possibly from different working environments. Therefore, you must "teach" Battery Watch your average brightness level.

Battery Watch records the actual capacity of your battery as a percentage of factory capacity. It is this percentage that must be updated from time to time to yield the most accurate readings.

The Complete Battery Watch Cycle

Do the following when you start using Battery Watch-and periodically thereafter-to keep it informed about the actual capacity of your battery. This will keep your battery operating at its peak.

1. Fully charge the battery. (The green indicator light on the AC Adapter is on.)

2. Turn on your computer, or restart it by pressing the **Ctrl-Alt-Del** keys.

3. When the *FULL BATTERY CAPACITY* menu displays, press the **Y** key.

4. Press the **Y** key again to return to factory capacity.

5. With Battery Watch loaded the entire time the computer is on, completely discharge the battery using your computer in your normal way over one or more sessions. Or use the Battery Watch automatic discharge feature described under "Deep Discharge" later in this chapter.

6. Connect the AC Adapter and fully recharge the battery.

7. At the *FULL BATTERY CAPACITY* menu, press the **Y** key and then press the **Enter** key or the **N** key.

Battery Watch has now compiled a record of your computer's performance that you can use for future estimates.

Incomplete Cycles

The complete Battery Watch cycle is the ideal. It yields the most accurate Battery Watch information and ensures the peak capacity of your battery. You should use only the information gathered during a complete Battery Watch cycle.

Unfortunately, you cannot always perform a complete cycle. You frequently will recharge the battery before it is completely discharged, and you may have to use your computer for a period when Battery Watch is not loaded. The information Battery Watch records in these circumstances is not reliable and should not be saved for future use. The threshold value is preset to 90 percent at the factory, but you can change this value at the Battery Watch OPTIONS menu described later in this chapter. Battery Watch discards incomplete cycles below the threshold value.

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Keeping Battery Watch Up to Date

If you were unable to complete any part of the Battery Watch cycle described previously (for example, not completely charging or discharging the battery or by operating your computer without loading Battery Watch), Battery Watch automatically discards computed capacity values below the threshold value.

Unloading Battery Watch

Although you should have Battery Watch loaded while you are operating your computer, you may need to unload it under the following circumstances.

❑ You need to use the 16 KB of RAM occupied by Battery Watch

❑ Battery Watch conflicts or degrades your application program's performance

To unload Battery Watch, follow these steps.

1. If you have loaded any other programs after you loaded Battery Watch, quit your applications programs and unload any TSR programs.

2. At the **C:\>** prompt type

BW UN

and press the **Enter** key. Battery Watch then displays the message:

Battery Watch has been unloaded.

Note: If you type the UN(load) command when Battery Watch is not loaded, the screen displays the message 'Battery Watch not installed."

Using the Time to Empty Menu

When Battery Watch is loaded, you can call up the Battery Watch *Estimated Time to Empty* menu by pressing the **Alt-Shift-B** hot key from within most applications programs except graphics programs such as Microsoft Windows.

Note: You can designate a different hot key than **Alt-Shift-B** on the Battery Watch *OPTIONS* menu as described later in this chapter under "Changing the Hot Key."

At the Laptop Manager main menu, you can also call up the Battery Watch *Estimated Time to Empty* menu by pressing the **F10** key. And you can call up this menu at the MSDOS **C:\>** prompt by typing

BW

and pressing the **Enter** key.

```
┌──────── TM3000-Battery Watch ────────┐
│  Ver n.nn      (C) Traveling Software │
│  E|      |      |       |        |F   │
│  ████████████████████████████████    │
│     Estimated Time to Empty   nn:nn   │
├─────────────────┬──────────┬──────────┤
│ Alarm #1=  20 min │ #2=  15 │ #3=   5  │
├─────────────────┴──────────┴──────────┤
│  (C)harger OFF    │  Modem Uninstalled │
├───────────────────┼────────────────────┤
│  (D)rain   AVG    │  (B)acklight MED    │
├───────────────────┼────────────────────┤
│  F1 Help    │  F3 Utilities │ ESC Exit │
└──────────────────────────────────────┘
```

The *Estimated Time to Empty* menu resembles the following.

The top two lines show which computer version of Battery Watch you have installed, the version number, and copyright information. The significance of the remaining information on the menu is explained in the following sections.

Note: To clear the *Estimated Time to Empty* menu from the screen, press the Esc key.

Bar Gauge

The horizontal bar gauge shows you the amount of charge remaining in the battery. If the battery was fully charged when you installed Battery Watch, the gauge shows a full charge. If you activated Battery Watch in your last computer session and have not recharged the battery since, Battery Watch remembers the charge your battery had when the computer was turned off, and the gauge reflects that reading.

Time Estimate

The *Estimated Time to Empty* is the length of time, in hours and minutes, that the battery should last. The time shown depends upon the drain selected.

❑   If you select average drain, the time estimate reflects the average rate of consumption. This value is recalculated every 3.8 seconds-based upon the components in use-and then averaged for the current session since Battery Watch was loaded.

❑   If you select current drain, the time estimate reflects the current power consumption.

Because the rate of power consumption changes from moment to moment as various computer components become active or idle, the *Estimated Time to Empty* also changes. For example, if you are frequently using your floppy drive, the *Estimated Time to Empty* is less than when the computer is on but idle.

Using the Time to Empty Menu

Alarm Settings

Battery Watch has three alarms to alert you that the battery is running low. When the *Estimated Time to Empty* reaches the time in one of these alarms, Battery Watch sounds a warning to alert you that the battery is almost discharged.

Set the alarms on the Battery Watch *OPTIONS* menu. The current settings for the alarms are shown on the Battery Watch *Estimated Time to Empty* menu. Refer to the section, "Setting Battery Watch Options," for instructions on changing the alarms.

Charger Status

The Battery Watch *Estimated Time to Empty* menu displays whether the AC Adapter (and thus the charger) is connected. When it is loaded, Battery Watch detects whether the battery is charging. If you change the charger status by connecting or disconnecting the AC Adapter, Battery Watch changes the charger status.

Modem Status

The Battery Watch *Estimated Time to Empty* menu displays the current status of the internal modem.

❑ If your computer does not have an internal modem, the status is UNINSTALLED.

Note: If you have installed an internal modem but have disabled port 2 by setting the *Option Comm* item at the Setup Program to *Disable*, the *UNINSTALLED* status also displays.

❑ If your computer has an internal modem and port 2 is enabled, the status is either *ON or OFF*.
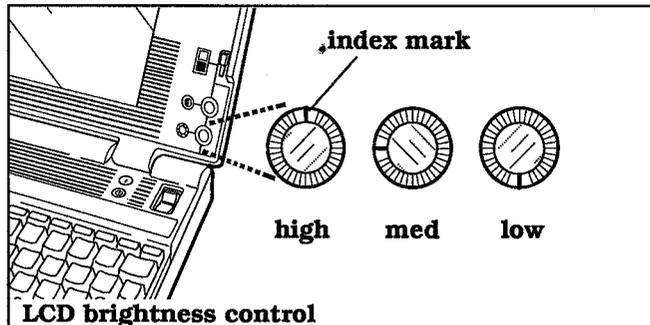
Using the Time to Empty

Drain Status

The Battery Watch *Estimated Time to Empty* menu shows the current assumption Battery Watch is using to estimate time remaining.

❑ If the status is *AVG*, Battery Watch is using the average power consumption since the beginning of the current Battery Watch session.

❑ If the status is *CUR*, Battery Watch is using the current power consumption.

To change the drain status, press the **D** key to toggle from *AVG to CUR* and from *CUR* to *AVG*.

Backlite Setting

You should set the *(B)acklite* status to reflect where you have adjusted the computer display's brightness control. Note the current position of your computer's brightness control index mark-, then press the **B** key to set *(B)acklite* to HIGH, MED, or Low to match your setting (or nearest to). If you later reset the brightness control, try to remember to reset the *(B)acklite* setting on this menu.

LCD brightness control

Using the Time to Empty Menu

Getting Help

The Help display provides some information about the Battery Watch *Estimated Time to Empty* menu. Load the Help display by pressing the **F1** key. Return to the Battery

Watch *Estimated Time to Empty* menu by pressing the **Esc** key.

Exiting the *Estimated Time to Empty* Menu

Exit the Battery Watch *Estimated Time to Empty* menu by pressing the **Esc** key. When you exit the *Estimated Time to Empty* menu, the computer resumes work at the point where you pressed the **Alt-Shift-B** keys to enter the menu.

Using Battery Watch Utilities

Pressing the **F3** key at the *Estimated Time to Empty* menu causes the *UTILITIES* menu to display. The *UTILITIES* menu enables you to access three Battery Watch functions: a deep discharge feature, a battery status report, and a battery level estimate adjustment.

```
============== UTILITIES ==============
F4 Deep Discharge │ F5 Status │ F6 Battery Set │ ESC Exit
```
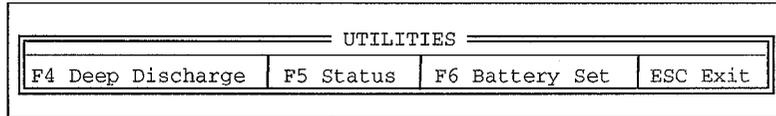
Deep Discharge (F4 Key)

As explained previously, there are two good reasons for completely discharging the computer battery:

❑ NiCad batteries left idle for long periods of time may require reconditioning to recover their full capacity.

❑ By occasionally charging, discharging, and recharging your battery completely, you give Battery Watch an accurate reading of your battery's current capacity.

The Deep Discharge feature available in the *UTILITIES* menu reduces the time necessary to discharge the battery. The Deep Discharge feature takes control of the computer until the battery is discharged (you won't be able to use the computer in the meantime).

Before using Deep Discharge, do the following to reduce the time it takes to discharge the battery pack.

❑ Run the TravelMate 3000 Setup Program and reset the *Backlight Off* and *HDD Motor Off* items to *Always On*.

❑ Insert a floppy into the floppy drive.

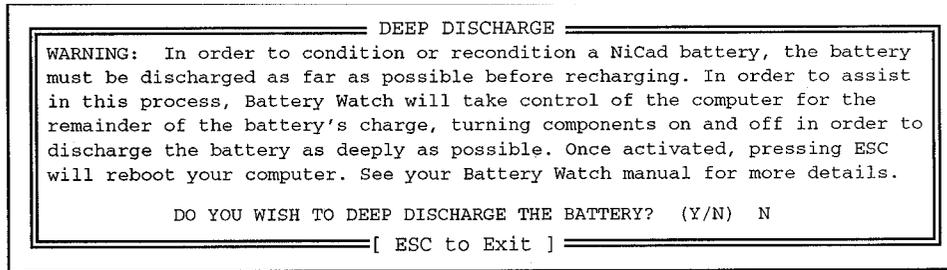❑ Run the SETPOWER /L0 utility to turn off active power savings.

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Using Battery Watch Utilities

❑ Leave the screen brightness control set where you usually have it when using the computer on battery power.

Then deep discharge the battery pack as follows.

1. Disconnect the AC Adapter from the computer.

2. Set the *Battery Alarm* item at the Setup Program to *Off* (see the computer's *User's Manual* for instructions). You do *not* need to turn off the Battery Watch alarms. These alarms do not function during deep discharge.

3. Press the **F4** key at the Battery Watch *UTILITIES* menu to display the *Deep Discharge* menu:

```
======================= DEEP DISCHARGE =======================
WARNING:  In order to condition or recondition a NiCad battery, the battery
must be discharged as far as possible before recharging. In order to assist
in this process, Battery Watch will take control of the computer for the
remainder of the battery's charge, turning components on and off in order to
discharge the battery as deeply as possible. Once activated, pressing ESC
will reboot your computer. See your Battery Watch manual for more details.

          DO YOU WISH TO DEEP DISCHARGE THE BATTERY?  (Y/N)  N
=========================[ ESC to Exit ]========================
```

4. Press the **Y** key and then the **Enter** key. The *ESC to Exit* line changes to:

Press ESC to reboot

The time required for Deep Discharge depends on your battery's capacity, its charge state, and your computer's components. Even if you complete the deep discharge preparations described earlier in this section, a deep discharge can last up to 3 hours, although most take less time. The most convenient time to use Deep Discharge is usually overnight.

You can halt the Deep Discharge process any time by pressing the **Esc** key to reboot the computer.

Using Battery, Watch Utilities

Note: Using the deep discharge feature does not eliminate the need to use the computer's automatic discharge circuit. After the Battery Watch deep discharge finishes, leave the computer power switch on until all indicator lights go off.

STATUS Display (F5)

Press the **F5** key at the *UTILITIES* menu to load the STATUS display. Press the **Esc** Key to return to the *UTILITIES* menu.

```
════════════════════════════ STATUS ═══════════════════════════
This window shows the current values used in the Battery Watch calculations.
You may change these values by using the Options screen. ( Type 'BW OP' at
DOS prompt. ) See your Battery Watch manual for further details.

Capacity  4800 mAH   Charger      0 %  300 mA   HD Motor   100 %   150 mA
Avg Drain 2108 mA    Lo System    0 % 1220 mA   HD Active    0 %   450 mA
BatteryPro   0 mA    Md System    0 % 1240 mA   FD Active    0 %   242 mA
Cur Drain 2439 mA    Hi System  100 % 1470 mA   Backlight  100 %   690 mA
                     Modem        0 %   19 mA   Miscellaneous:     125 mA
══════════════════════════[ ESC to Exit ]══════════════════════
```

The following abbreviations are used on the STATUS display.

STATUS Display Abbreviations

mA   milliamperes-a measure of electrical current

mAH   milliampere hours-a measure of the energy a battery contains; for example, at 1200 mAH, a battery can provide 1200 mA for one hour or 600 mA for two hours

HD   Hard disk drive

FD   Floppy disk drive

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Using Battery Watch Utilities

The left column on the STATUS display provides the following information.

Capacity   The assumed or measured battery capacity in mAH: the factory
               capacity is preset, but you can change the value at the *OPTIONS* menu

Avg Drain   The average current required to power the computer during the current
               session; recalculated and displayed every 3.8 seconds

BatteryPro   The amount of power being saved by the BatteryPro device driver;
               helpful when determining the power savings level to use with an
               application; refer to Chapter 2 for details

Note: The BatteryPro savings value is valid only until the next Battery Watch check
3.8 seconds after the STATUS display appears; after that, the value returns to 0. To see
the BatteryPro value again, press the **Esc** key three times to terminate the Battery Watch
menu; wait at least 5 seconds, then press the **Alt-Shift-B** keys, the **F3** key, and the **F5**
key to return to the STATUS display.

Cur Drain   The power being used by the computer at the last Battery Watch
               check; recalculated and displayed every 3.8 seconds

The middle and right columns of data list various components with the average
percentages of time they are on and the current required while they are on. For
example, the line

HD Motor   100%   200 mA

means the hard disk drive motor has been on 100% of the time, requiring 200 mA while
on.

Using Battery Watch Utilities

Charger   The percent of time the charger has been charging the battery and the current rate of charge; the computer can determine whether the charge rate is fast or trickle depending on how much current the computer is using. Since the computer may use more or less current at different times, Battery Watch monitors the charge and updates the charge capacity in real time or reflects the current charge rate. The TravelMate 3000 fast charges when the computer is on and using less than 1700 mA

Battery Set Menu

Press the F6 key at the *UTILITIES* menu to load the *BATTERY SET* menu.

```
╔══════════════════ BATTERY SET ══════════════════╗
║           Adjust to Estimated Battery Level       ║
╠═════════════════╦═══════════════╦═══════════════╣
║  <- Decrease    ║   ESC Exit    ║   Increase ->  ║
╚═════════════════╩═══════════════╩═══════════════╝
```

With the Battery Set feature, you can override the current battery level Battery Watch is using. You need to do this if you know that your battery has more or less charge than shown by Battery Watch. For example, if you run your computer for a while without loading Battery Watch, your battery has a smaller charge than shown by Battery Watch.

At the *BATTERY SET* menu, you can use the following keys.

❑   Press the ← key to shorten the bar gauge in the *Estimated Time to Empty* menu. The estimated time to empty value is correspondingly reduced as the bar gauge contracts.

❑   Press the → key to lengthen the bar gauge and increases the *Estimated Time to Empty*.

❑   Press the Esc key to exit the *BATTERY SET* menu.

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Using Battery Watch Utilities

Any adjustment you make is only a rough estimate, so time estimates Battery Watch can provide are rougher than usual.

Note: If you used Battery Watch during your last computer session, Battery Watch "remembers" how much charge the battery had when you turned off the computer; it uses that value to begin calculations for the current session. In this case, you do not need to use the *BATTERY SET* menu to adjust the charge level.

Your version of Battery Watch was designed specifically for the factory-standard components of your TravelMate 3000 Computer, so you should not have to modify Battery Watch. The components and their preset Battery Watch values are displayed on the Battery Watch STATUS display.

However, you might want to customize Battery Watch for one of the following reasons.

❑ You want to change the hot key or alarm settings

❑ You add non-factory-standard components (such as an enhanced battery) to your computer

❑ Your battery discharges much sooner than estimated by Battery Watch. *Aged batteries* are especially prone to early discharges condition that a full discharge cannot significantly correct.

To display the Battery Watch *OPTIONS* menu, whether or not Battery Watch is loaded, at the **C:\>** prompt type

BW OP

and press the **Enter** key. Battery Watch displays a menu similar to the following.

```
====================== BATTERY WATCH OPTIONS ======================
The items below are the default settings used in the Battery Watch
calculations.  They may be changed by moving the bar cursor to the
appropriate item and entering the new value. Typing the letter 'F'
in any location will invoke the factory default setting.  Typing
'C' in any location will invoke the currently saved value.


 Battery capacity     4800 maH      Modem installed      Y
 Low speed system     1220 mA       Modem active        19   mA
 Med speed system     1240 mA       Modem base          84   mA
 Hi  speed system     1470 mA       Alarm #1            20   min
 System sleep mode     900 mA       Alarm #2            10   min
 Floppy disk          242 mA        Alarm #3             5   min
 Hard disk active     450 mA        Charge rate        300   mA
 Hard disk motor      150 mA        Modem inst. drain    4   mA
 HD timeout           255 min       Adjust threshold    90   %
 Backlight            690 mA        Hot key  ALT-SHIFT-B
 BL timeout             0 min
=================[ ESC to Exit or F10 to Save ]=================
```

Battery Watch Options

Making Changes on the *OPTIONS* Menu

You can change the values on the *OPTIONS* menu as follows.

1.   Press the ↓ or ↑ keys to move the bar cursor to the field you want to change.

2.   Type in the new value, or press one of the following keys.

  ❑   Press the **F** key to change to the factory default for the field.

  ❑   Press the **C** key to change to the currently stored value for the field.

3.   After you have been through all the fields, Battery Watch asks if you want to save the new settings.

  ❑   Press the **Y** key to save the settings.

  ❑   Press the **N** key to return the cursor to the first field. You can press the **F10** key at any time to save the new settings. You can also press the **Esc** key to leave the *OPTIONS* menu without saving changes.

Note: If Battery Watch is *not* active when you leave the *OPTIONS* menu, this message appears above the MS-DOS prompt:

To install Battery Watch, type 'BW'

Changing the Capacity/Usage Fields

Before changing the values in the battery capacity field or one of the current requirements fields, you should determine the value to enter using the documentation that accompanied the component. If you have any questions about these values, check with your computer dealer or the manufacturer of the component.

Battery Watch Options

⚠ **Caution: Battery Watch uses refined algorithms, and the item values it uses are precise under normal circumstances. Make changes to the factory values judiciously and only on an informed basis. Guessing about values leads to inaccurate and undependable calculations.**

Changing the Hot Key

The Hot Key is your means of calling up the *Estimated Time to Empty* menu. The default hot key is **Alt-Shift-B,** but you can set it to another key. However, when changing the hot key, keep the following in mind.

❑ Most hot keys have two parts: the **Ctrl, Shift,** and **Alt** keys (or a combination thereof) plus a letter, number, or function key.

❑ Do not set the hot key to a single or shifted alphanumeric key; the possibility of conflict with other needed keys is too great.

❑ You can use a function key without the **Ctrl, Shift,** or **Alt** keys, but you should ensure it is not already used in any of the applications programs on your computer.

To change the hot key, move the cursor to the hot-key field and press and hold the **Ctrl, Shift,** and/or **Alt** keys and then press the alphanumeric or function key you want to assign.

Changing the Alarms

The *OPTIONS* menu also includes three alarm settings that warn you when your battery is nearing discharge. You can set these alarms to ring as many minutes in advance of es timated battery discharge as you want. You can turn off an alarm by setting its value to 0.

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Battery Watch Options

For example, if you set *Alarm* #1 to 30 minutes, *Alarm* #2 to 15 minutes, and *Alarm* #3 to 5 minutes, when Battery Watch estimates only 30 minutes worth of charge remaining in your battery, the computer sounds a three-tone alarm and displays a menu similar to the *Estimated Time to Empty* menu, but with the heading changed to "Battery Watch Alarm." The three-tone alarm and display are repeated at 15 minutes and 5 minutes before estimated battery discharge.

> **Note:** Because Battery Watch's algorithms cannot guarantee complete accuracy, you might want to add a "cushion" of 5-10 minutes to your alarm settings to ensure that your battery does not discharge without sufficient warning.

Your alarm settings are also listed (but cannot be changed) on the Battery Watch *Estimated Time to Empty* menu you can view by pressing the **Alt-Shift-B** keys.

Adjusting Threshold

Battery Watch uses the *Adjust threshold* value to determine when a complete cycle is valid. Battery Watch discards any cycles below this percentage. You can change the value after you have evaluated your own usage experience to gain a more accurate battery capacity calculation. The calculations are based on the following equations:

Threshold >= last Battery Watch cycle :
    (average battery capacity + last battery capacity)/2

Threshold < last Battery Watch cycle :
    (factory capacity + average battery capacity)/2

4
Display Utilities

This chapter tells you about

❑ CURSOR, which controls character repeat rate and cursor appearance

❑ PAL, which controls built-in LCD gray shades and external monitor colors

❑ RPAL, which enables you to make real-time changes to gray shades on the LCD or color combinations on an external color monitor

❑ Shadow, which controls cursor blinking rate

Contents

Cursor and Typematic Control

The CURSOR Utility gives you control over of the size, blink rate, and visibility of the cursor on your LCD display. This utility also enables you to control the typematic character repeat rate and character repeat delay times.

> **Note:** Many application programs take control of the cursor and typernatic features and provide their own cursor setup procedures. See your application program documentation.

Adjust the cursor and typematic characteristics as follows.

1. At the **C:\>** prompt, type

CURSOR

and press the **Enter** key. The CURSOR utility displays the following menu and then returns to the MS-DOS prompt:

usage: cursor [/rx /dx /bx /sx]

      /rx   char repeat rate, x is:
               v - 30 cps
               f - 20 cps
               n - 10 cps (def)
               s - 5 cps
               c - 2 cps
      /dx   char repeat delay, x is:
               1 - 1 second
               2 - .75s
               3 - .5s (def)
               4 - .25s
      /bx   cursor blink rate, x is:
               s - slow
               f - fast
      /sx   cursor size, x is:
               f - full cursor
               h - half
               u - underline (def)

2. To change the cursor, type

CURSOR /XY

where X is the one-letter code for the cursor characteristic you want to change (r, d, b, or s), and Y is the one-letter code for the cursor action you want.

For example, the code to change cursor size is S, and the code for a full-size cursor is F. Therefore, to change the cursor to full-size, you would type

CURSOR /SF

and press the **Enter** key.

Note that you can include any one or all four parameters on the same line, for example:

CURSOR /RV /D2 /BS /SU

Note: Be sure you include the / (slash) character before each two-letter code. Spaces between codes are optional.

Character Repeat Rate

The character repeat rate, set using the RX code, enables you to adjust the number of characters per second (cps) the keyboard generates when you hold down an alphanumeric key. You can set the rate from 2 cps to 30 cps as shown on the CURSOR command listing. The default repeat rate is 10 cps.

Character Repeat Delay

The character repeat delay, set using the DX code, lets you adjust the time you must hold down a key before the typematic feature starts. You can set the delay from 0.25 to I second as shown on the CURSOR command listing. The default delay value is 0.5 second.

Cursor and Typematic Control

Cursor Blink Rate

The cursor blink rate, set using the bx code, enables you to set the speed at which the cursor blinks. You can choose either a slow or fast blink rate as shown on the CURSOR command listing. The fast blink rate is the default value.

Cursor Size

The cursor size adjustment, set using the sx code, lets you set the cursor size to a half, full, or underline cursor. The underline is the default size.

Adding CURSOR to Your AUTOEXEC.BAT File

You can include the cursor setting in your AUTOEXEC.BAT file so that the cursor and character repeat characteristics you want are active when you turn on the computer. For example, to set the character repeat rate to 20 cps, the delay to I second, and the cursor to **full** size at a fast blink rate when you start the computer, add the following line to your AUTOEXEC.BAT file:

CURSOR /RF /Dl /BF /SF

Note: Some application programs may require additional cursor enhancements for improved viewing. The Shadow utility, described later in this chapter, can enhance the cursor in many application programs.

Display Control Utilities

The TravelMate 3000 LCD screen simultaneously displays up to 16 colors as 32 shades of gray (mapped into the 64 VGA standard colors). You can change the shade of gray selected to represent each of the 16 colors to maximize contrast between adjacent gray scale shades when running programs that use particular color combinations. The mapping of gray scales to colors is called a *palette.*

The TravelMate 3000 comes with a default palette (P0) which is suitable for most applications, two alternative fixed palettes (P2 for text display and P3 for graphics), and two user-definable palettes (P4 and P5).

In addition, palette P1 sets the foreground and background shades for text mode displays to give the best contrast. The P2 palette uses gray scales which uniquely match the colors used in a program displaying in text mode. Palette P1 uses a smaller number of gray scales to ensure that the displayed text is always readable on a background of any color combination.

The RPAL utility furnished with the BatteryPro package enables you to modify the two user palettes, P4 and P5. However, in 4-color and 2-color graphics modes, the palette is predefined and cannot be modified.

Note: Some application programs take control of the display and provide their own color setup procedures. See your application program documentation for details.

PAL Utility

The PAL utility defines then current palette. The power-on default is PO. You can use the PAL utility to do the following tasks.

❑ Change to a predefined palette

❑ Change specific colors and gray shades

↪

Display Control Utilities

Changing to a Predefined Palette

To change to one of the system palettes or a user palette defined by the RPAL utility, at the MS-DOS **C:\>** prompt, type

PAL Pn

and press the **Enter** key.

In this form of the command, n has the following meaning.

      0 - Default palette
      1 - Standard palette 0 (text)
      2 - Standard palette 1 (text)
      3 - Standard palette 2 (graphics)
      4 - User palette 1
      5 - User palette 2

Note: Palettes P0 through P3 are system palettes that cannot be changed. Palettes P4 and P5 are user palettes that can be modified using the RPAL utility described later in this chapter.

Changing Specific Shades

To change only a few specific shades, at the MS-DOS **C:\>** prompt type

PAL Cm:n [, Cm:n]

and press the **Enter** key.

In this form of the command, m is the color number (hex 0 through F) and n is the gray scale shade number (hex 0 through F). Refer to "RPAL Utility" later in this chapter for the meaning of the color numbers. If n is smaller than m, the shade will be lighter. If n is larger than m, the shade will be darker.

Note: Palettes created or modified with the PAL command are *not* saved.

Other Ways to Select a Predefined Palette

After you define a palette using the RPAL utility, you have two additional ways to select the defined palette.

❑　　　Select the palette from the keyboard

❑　　　Include the command in your AUTOEXEC.BAT file

Selecting the Palette From the Keyboard - To change the current palette, press the **Fn-Alt-Esc** keys. Each time you press the **Fn-Alt-Esc** keys, the display changes to the next palette (P0 through P5). Stop pressing **Fn-Alt-Esc** when the palette you prefer is displayed.

Including the Palette in the AUTOEXEC.BAT file - If you want the computer to load a particular palette at start up, include the PAL command in your AUTOEXEC.BAT file. For example, to start up with user palette 1 loaded, include the command PAL P4 in your AUTOEXEC.BAT file.

RPAL Utility

With the RPAL utility, you can make real-time gray shade changes to the LCD or color changes to an attached color monitor. RPAL displays a small gray shades or color palette over part of your current screen when you press a hot key (the **Alt** key plus an alphabet key you can assign).

Note: The RPAL pop-up menu is intended for use only with text application programs and has no effect on graphic applications such as Microsoft Windows, Ventura Publisher, and the graph display within Lotus 1-2-3.

You can create custom palettes for each of your application programs and store the specific settings in a data file. If you assign the custom palette file to the application using the Laptop Manager Setup Menu, the computer loads the custom palette when you select the application.

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Display Control utilities

By adding RPAL to your AUTOEXEC.BAT file, you can also define the current palette when you turn on your computer.

Note: Some application programs provide their own color setup procedures. Some application programs also take control of the keyboard and do not recognize the RPAL hot key.

RPAL does not display the palette when you run graphics application programs. However, you can adjust your colors or gray shades at an MS-DOS prompt before you load your graphics application program.

Installing RPAL

To see your options when installing the RPAL utility, at the MS-DOS **C:\>** prompt type

RPAL /?

and press the **Enter** key. RPAL displays the following menu and then returns to the MS-DOS prompt.

Resident Palette v386SX-N.NN.N.NN
(c)   1990 Texas Instruments Incorporated

Usage: RPAL [/U /I /Ddatafile /Kc /1userlfile /2user2file]
         [ ] - denotes optional parameters
         Parameters:
         /U   attempt to uninstall RPAL
         /I   install RPAL as a TSR
         /Ddatafile   use palette setting in datafile
         /Kchar   use char key with the ALT key as hot key, where char is a
                         letter between A and Z
         /luserlfile set user palette I to setting in userlfile
         /2user2file set user palette 2 to setting in user2file

RPAL Switches

/I switch - Installing RPAL as TSR Program - You can install PPAL as a terminate-and-stay-resident (TSR) program. As a TSR program, RPAL is accessible from MS-

RPAL /I

and press the **Enter** key. If you do not include the /Kc switch, the computer uses **Alt-P** as the default hot key.

/U Switch - Removing RPAL From RAM - If **RPAL** is installed as a TSR program and you want to remove **RPAL** from RAM, at the **C:\>** prompt type

RPAL /U

and press the **Enter** key. RPAL is deleted from RAM but not from the hard disk; you can reinstall RPAL at any time at the MS-DOS prompt.

Note: If other TSR programs are currently installed, you must uninstall them in the order in which they were installed. Or you can update your work and reboot to remove all TSRs from RAM.

/Ddatafile Switch - Loading an RPAL Data File - To load an RPAL data Me, at the C:\> prompt type

RPAL /D*datafile*

and press the **Enter** key. In *datafile* include the full path and filename of the RPAL data Me. See 'Saving an RPAL Data File' later in this chapter for instructions on how to save an RPAL file.

For example, if you stored your custom color data file (named COLOR.DAT) in the utilities directory (UTILS), your command to load the file would be:

RPAL /D\UTILS\COLOR.DAT

/Kc Switch - Defining a Hot Key - If you install RPAL a TSR file without defining a hot key, the **Alt-P** keys are the default. To define another alpha key (A through Z) as the hot key, at the **C:\>** prompt type

RPAL /Kc

Display Control Utilities

and press the Enter key, where c is the alphabet character key (A to Z) you want to be the hot key.

/1 and /2 Switches - Defining User Palettes - To establish an RPAL data file as one of the two user palettes, at the **C:\>** prompt type either

RPAL */1user1file*

or

RPAL */2user2file*

and press the **Enter** key. In these commands, *user1file* and *user2file* must be the full paths and filenames of the RPAL data file you select as user palette 1 (p4) or user palette 2 (p5). You can then access these palettes from the keyboard by pressing the **Fn-Alt-Esc** keys.

Refer to the "Saving an RPAL Data File" later in this section for instructions on how to save an RPAL file.

Using RPAL

To use RPAL at any MS-DOS prompt or during most application programs, press the **Alt-P** keys (or **Alt** plus the hot key you assigned during installation): RPAL displays the following menu on the left side of your screen.
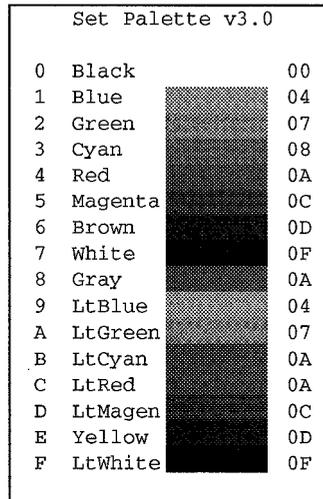
```
    Set Palette v3.0

 0   Black                00
 1   Blue                 04
 2   Green                07
 3   Cyan                 08
 4   Red                  0A
 5   Magenta              0C
 6   Brown                0D
 7   White                0F
 8   Gray                 0A
 9   LtBlue               04
 A   LtGreen              07
 B   LtCyan               0A
 C   LtRed                0A
 D   LtMagen              0C
 E   Yellow               0D
 F   LtWhite              0F
```

You can use the following keys at the RPAL menu.

RPAL Menu Function Keys

Key	Function
↑ ↓	selects the color to adjust
← →	selects the color hue or gray shade
Ctrl-←,	moves the menu to the left or right
Ctrl-→	so you can view the entire screen
R	resets all color hue or gray shades to their factory default values
S	saves the current palette to an RPAL data Me (see the following section)
L	load an RPAL data file
1	saves the current palette as user palette 1 (p4)
2	saves the current palette as user palette 2 (p5)
H	displays help information
Esc	exits the menu

Display Control utilities

RPAL changes gray shades or colors in real time, so you can see the changes as you make them.

Saving an RPAL Data File

To save an RPAL data file, follow these steps.

1. Press the **S** key from the RPAL Set Up Menu. RPAL displays a filename prompt.

2. Type the full path and filename of the RPAL data file (using standard MS-DOS path and filename rules). RPAL limits your *pathname/filename* to 38 characters.

3. Press the **Enter** key to save the file. Press the **Esc** key to leave without saving the file.

Note: You can save an unlimited number of palettes by assigning them unique filenames.

Adding RPAL to Your AUTOEXEC.BAT File

By including an RPAL command in Your AUTOEXEC.BAT Me, you can install RPAL each time you turn on the computer. Add the following line to your AUTOEXEC. BAT file:

RPAL /I /D*datafile* /KC

where the option *datafile* is the pathname of your custom RPAL data file (if you do not want the factory default palette), and c is the alphabet character (A through Z) you want to use with the **Alt** key as the hot key combination (if you do not want to use the default **Alt-P** key combination).

Note: Your TravelMate 3000 UTILS directory has several sample color palette files configured at the factory for use with individual application programs. These files end with the PAL extension (for example, the sample palette for Bitfax ™ is BITFAX PAL). When you install your programs, examine the UTILS directory for available palette files and try them.

The Shadow utility is a terminate-and-stay-resident (TSR) utility that enhances your choice of cursor characteristics. The Shadow cursor feature works with most text application programs.

Note: The Shadow utility is intended for use only with text application programs and does not affect graphic applications such as Microsoft Windows, Ventura Publisher, and the graph display within Lotus 1-2-3.

Using the Shadow Utility

Use the Shadow utility as follows.

1.   At the MS-DOS **C:\>** prompt type

        SHADOW /?

        and press the **Enter** key. The Shadow utility displays the following menu and then returns to the MS-DOS prompt.

        Usage: Shadow [/u /ox /bx]

                /u   uninstall the shadow cursor

                /ox   turn shadow cursor on or off, x is:
                        n - turn on (def)
                        f - turn off

                /bx   cursor blink rate, x is:
                        s - slow
                        n - normal
                        f - fast
                        b - no blink, solid (def)

2.   To change the shadow cursor characteristics, type

        SHADOW */XY*

        and press the **Enter** key, where X is the one-letter code for the cursor characteristic you want to change (o, or b), and Y is the one-letter code for the cursor action you want.

Shadow Utility

For example, the code to change shadow cursor blink rate is B (or *b*), and the code for fast blink rate is F (or *f*). Therefore, to change the cursor blink rate to fast, you would type

SHADOW /BF

and press the **Enter** key. Use the one- or two-letter code for shadow cursor characteristics listed on the SHADOW command listing (except *u,* which deletes the shadow cursor). The default settings are identified by (*def*) on the listing.

> **Note:**   Be sure you include the / (slash) character before the two-letter code. Spaces between codes are optional.

Adding Shadow to Your AUTOEXEC.BAT File

By including a SHADOW command in your AUTOEXEC.BAT file, you can define the Shadow cursor characteristics each time you turn on the computer.

For example, to turn on the Shadow cursor at a fast blink rate when you start the computer, add the following line to your AUTOEXEC.BAT file:

SHADOW /BF

This chapter tells you about

❑   Using the Laptop File Manager (LFM) program to manage and view your files and directories

❑   LFM commands that simplify directory and file copying, deletion, printing, renaming, and other common file management functions

Contents

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Contents

Getting Started with LFM

The Laptop File Manager (LFM) utility furnished with your TravelMate 3000 Notebook Computer helps you manipulate files and directories stored on your computer's hard disk. Many functions operate on two or more files, called *multiple file operations,* described later in this chapter. LFM provides the following functions.

❑   Assign or change file attributes to one or multiple files

❑   Copy one or multiple files or directories to other directories or to floppies

❑   Delete one or multiple directories and files from hard disk or floppies

❑   Find files using MS-DOS patterns

❑   Send one or multiple files to a printer or other device connected to your computer

❑   Rename one or multiple files and directories

❑   Show files for viewing

❑   Change file's date and time

❑   Display hard disk and floppy statistics, such as disk capacity and disk space in use

❑   Execute application programs, including your editing or word processing program, at the press of a key

❑   Create files and directories

❑   Sort the directory and file listings by name, extension, date, or size

❑   Execute MS-DOS commands or shells

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Getting Started with LFM

Note: Do not confuse Laptop *File* Manager (LFM) described in this chapter with the Laptop Manager (LM) utility also furnished on your computer and described in Chapter I of this manual.

Loading LFM

The LFM program is installed at the factory on your computer's hard disk drive. The Laptop Manager utility is configured at the factory to enable you to load LFM from the Laptop Manager main menu by pressing the **F2** key. See Chapter 1 for details about Laptop Manager.

You also can load Laptop File Manager at the MS-DOS **C:\>** prompt by typing

LFM

and pressing the **Enter** key. Either way, LFM displays a listing of the files and directories in the current directory similar to the following figure. From this listing you can select drives, directories, and files to view and manipulate.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│ Laptop File Manager vn.nn                              Mon Nov 30  12:00 pm   │
│                                                                               │
│ C:\                                                                           │
│  Filename Ext    Bytes    Attr    Last Update    ┌┤ Commands ├───────────┐    │
│   DOS            <DIR>    ....  00/00/90 00:59:59 │ A - Attr    P - Print  │   │
│   UTILS          <DIR>    ....  00/00/90 00:00:59 │ C - Copy    Q - Quit   │   │
│   AUTOEXEC BAK     183    A...  00/00/90 00:00:59 │ D - Delete  R - Rename │   │
│   CONFIG   BAK      75    A...  00/00/90 00:00:59 │ E - Edit    S - Show   │   │
│   AUTOEXEC BAT     184    A...  00/00/90 00:00:59 │ X - Excl    T - Tag    │   │
│   LAPLINK  CFG      55    A...  00/00/90 00:00:59 │ F - Find    ESC- Up    │   │
│   COMMAND  COM   25308    A...  00/00/90 00:00:59 │ I - Incl    U - Update │   │
│   MSETUP   EXE  143680    A...  00/00/90 00:00:59 └────────────────────────┘   │
│   CONFIG   SYS      79    A...  00/00/90 00:00:59                              │
│   MSDOS    SYS   30128    ARSH  00/00/90 00:00:59                              │
│                                                                               │
│                                                                               │
│  F1=Help F2=CDir F3=ReRd F4=STAT F5=Split F6=Creat F7=Sort F8=DOS F9=Go F10=Setup │
└─────────────────────────────────────────────────────────────────────────────┘
```

Using the Main Menu

Use the following keys and commands to move the highlight around the LFM main menu to help you work with your directories and files.

LFM Menu Function Keys

Key	Function
F1	shows Help screen
↑	moves highlight up listing
↓	moves highlight down listing
End	highlights last listing entry
Home	highlights first listing entry
PgDn	shows next page of listing or Help screen if more than 1 page
PgUp	shows previous page of listing or Help screen
S, Enter	if directory name highlighted, shows selected subdirectory; if filename highlighted, shows contents of file
T	tags or untags highlighted directory or file for multiple command action
Esc	if at subdirectory, returns to higher directory-, if at root directory, no action; if command active, cancels command
Q	exits LFM or current screen of split screen after the "Are you sure?" prompt: * press **Y** to exit LFM or one screen of split screen * press **N** or **Enter** to cancel exit command

Function Key Commands

The function keys **(F1** through **F10)** listed along the bottom of the LFM main menu provide the functions described in this section.

F1 Help Key

Pressing the **F1** key at the LFM main menu-and at some LFM submenus-displays a Help screen with condensed user instructions. Some Help screens have more than one page; look in the upper right corner of the Help screen for the number of pages available. Press the **PgUp/PgDn** keys to move among the pages.

F2 CDir (Change Directory) Key

The change-directory function enables you to view other directories on the cur-rent drive and directories on the floppy drive and any optional drives connected to your computer. Press the **F2** key at the main menu and LFM
prompts you at the bottom of the screen:

Path: [   ]

At this prompt, you can type the pathname of the directory or drive you want LFM to display. If you want to change directories, type

C:\DIRNAME

and press the **Enter** key. LFM then displays the subdirectory and filenarnes of the directory named DIRNAME.

If you want to change drives, type the drive letter followed by a colon (for example, A:). You also can name a subdirectory on the new drive for display. For example, type

A:\EDITOR

and press the **Enter** key. LFM displays the EDITOR directory and its files.

F3 ReRd (Reread) Key

Pressing the **F3** key causes LFM to redisplay the listing. This function is useful if you are examining several floppies on the floppy drive. Rather than having to press the **F2** (Change Directory) key and typing the pathname, simply press the **F3** key each time you insert a new floppy into the floppy drive. You can also "untag" all files you may have previously tagged by pressing the **F3** key.

F4 STAT (Statistics) or CMDS (Commands) Key

The **F4** key is a toggle that causes LFM to display in the upper right quadrant of the main menu either the current drive statistics or a list of commands you can use at the main menu. If the statistics are displayed, the F4 prompt on the main menu shows *F4=CMDS.* If the commands list is displayed, the F4 prompt shows *F4=STAT.*

The statistics display lists the following information.

❑　　The current drive letter and volume name (if any)

❑　　The number of bytes available on the drive or floppy

❑　　The number of bytes in use and available for use (free) on the drive or floppy

❑　　The number of files on the current directory and their size in bytes

Note: Subdirectories are listed as files with no size (0 length).

❑　　Number of included (tagged) files, if any, and their size in bytes

Function Key Commands

The Commands display reminds you which key to press to activate a file management command. The commands are detailed later in this chapter.

F5 Split (Split Screen) Key

The split screen function enables you to view two directory listings on the same screen. At the LFM main menu, press the **F5** key and LFM prompts you at the bottom of the screen:

Path: [   ]

Type the pathname of the second directory you want to view and press the **Enter** key. The directory can be on the same drive or a different drive. You can use all function key commands and single-letter commands on directories and files in either listing.

Press the **F5** key to switch the highlight between the upper and lower directory listing.

Using Split Screen to Copy Files

You can simplify use of the Copy command using the split screen mode. For example, you first select (highlight) the destination directory to which you want to copy the file on one screen and then highlight the source file or directory on the other screen. LFM then displays the destination directory name in the "Path: [...]" prompt described above, saving you the time and effort to type the destination directory name. The split screen quickly displays the results of the copy process.

Exiting Split Screen

To return to only one screen, press the **Q** key to exit the highlighted window. LFM prompts you at the bottom of the screen

Are you sure?   [*N*   ]

To exit the split screen and return to one screen, press the **Y** key. If you do not want to abandon the split screen mode, press the **Enter** key or the **N** key.

F6 Creat (Create) Key

Pressing the **F6** key enables you to create a new directory or filename to the LFM prompt at the bottom of the screen

[F]ile or [D]irectory:

If you want to create a new file, press the **F** key. If you want to create a new directory, press the **D** key. LFM then prompts you

Path: [   ]

Type the filename or directory name and path using standard MS-DOS file and directory naming conventions (see the *MS-DOS User's* Manual furnished with your computer) and press the **Enter** key.

Example 1: If you want to create a new text file called

MYFILE under the existing NEWDIR directory on floppy drive

A, type

A:\NEWDIR\MYFILE.TXT

and press the **Enter** key.

Example 2: If you want to create a new subdirectory called JULY under the existing MEMOS directory on the root directory of hard disk drive C, type

C:\MEMOS\JULY

and press the **Enter** key.

Note: If you do not type a drive letter or directory name, LFM stores the new file or directory under the displayed or highlighted (current) directory.

Function Key Commands

Note that you cannot create a new directory and a new file with one command. You must first create the new directory before assigning new or existing files to it.

F7 Sort Key

The sort function enables you to display listed files in an order determined by one of several file attributes. Pressing the **F7** Sort key causes LFM to display at the bottom of the screen

Sort file list: [N]ame, [E]xtension,
[D]ate/time, [S]ize:

Press the key corresponding to the boxed character in the prompt to begin the sort function. LFM then sorts and displays the files in the current directory listing (and all other directories LFM displays) according the attribute you select from one of the following.

Name

Press the **N** key and LFM sorts all files in alphabetic order (A to Z). If any filenames begin with non-alphabetic characters, they are displayed before the alphabetic names.

Extension

Press the **E** key and LFM sorts all files by filename extension in alphabetic order. Filenames with no extension are listed first.

Date/time

Press the **D** key and LFM sorts all files by most recent time and date first.

Size

Press the **S** key and LFM sorts all files by number of bytes used, the largest first.

F8 DOS (Disk Operating System) Key

Pressing the **F8** key at the LFM main menu causes LFM to prompt at the bottom of the screen

Execute a DOS (S)hell or (C)ommand:

❑ If you want to execute an MS-DOS shell, press the **S** key. LFM displays a copyright message and the MSDOS **C:\>** prompt where you can type your shell pathname and press the **Enter** key to execute.

Note: When you finish using the shell, at the MS-DOS prompt type EX IT and press the **Enter** key .

❑ If you want to execute an MS-DOS command, pressing the **C** key causes LFM to prompt at the bottom of the screen

DOS Command: [   ]

where you can type any MS-DOS command and press the **Enter** key to execute.

F9 Go Key

Pressing the **F9** key at the LFM main menu causes LFM to load and execute programs based on the file's extension. For example, if you want to execute the MS-DOS EDLIN line editor utility on a particular file, move the highlight to the EDLIN.COM line under the DOS directory listing and press the **F9** key. Depending on how you have set up your LFM *Execute Commands* item in the **F10** LFM *Setup Commands* menu, LFM may prompt you at the bottom of the screen

Press ESC to cancel, any other key to execute:

Press any key-except the **Esc** key. Depending on how you have set up your **F10** LFM *Setup Commands* menu, LFM then may prompt you

Parameters: [   ]

Function Key Commands

At this prompt you can type the pathname of the file you want to edit and press the **Enter** key (or, if you are executing another type of file that requires no parameters, press the **Enter** key to start execution). In the example, the EDLIN screen would appear.

When you exit the executable program, LFM reloads and displays its main menu.

LFM uses extended/expanded memory for itself when you use the F9 Go function, reserving all but about 8 KB for the program. If no extended/expanded memory is available, LFM uses about 130 KB of standard base memory.

Note: Do not use the F9 Go function to execute a terminate-and-stay-resident (TSR) program. LFM cannot reload itself when you exit the TSR program and displays an error message. The MS-DOS PRINT program is an example. If you intend to use PRINT, install it in your AUTOEXEC.BAT file so the resident portion of PRINT will load Liter.

See the Help screens at the F10 LFM Setup Commands menu and at the Execute Commands Setup menu for more information on configuring the F9 Go function.

F10 Setup Key

Pressing the **F10** key at the LFM main menu causes LFM to display a Setup Commands menu at which you can select one of three submenus described in this section to configure LFM operating features.

Pressing the **F1** key causes LFM to display a Help screen describing the setup functions.

When you complete your changes to each menu, press the **Esc** key to return to the *Setup Commands* menu. Then press the **Esc** key again and answer the "Save changes?" prompt to return to the LFM main menu.

Pathnames/Options Setup Menu

Pressing the **P** key at the LFM Setup Commands menu causes LFM to display the
Pathnames Setup and Options Setup menu.

Pathname Setup

Editor Pathname :	[		]
Change Parameters:	[N]	Parms:[	]
Showfile Pathname:	[		]
Change Parameters:	[N]	Parms:[	]

Options Setup

Information Display:	Stats
Printer Output:	LPT1
Restore original Dir:	Yes
Execute Command	Prompt
Sort File List Key	Extension
Screen Display Rows	Normal
INCLUDE Directories	No
Use DOSPRINT if inst:	No

At this menu you can type the pathnames of the editing (or word processing) program
and the show-file program that you have installed in your computer. LFM does not
furnish a word processing or line-editing program. However, the **EDLIN** line editing
program supplied on the MS-DOS directory on the hard disk can be used to edit files
under LFM. If the editor pathname field is blank, the LFM main menu **E**(dit) command
(described later in this chapter) does nothing.

LFM **furnishes** its own show-file program if you do not type a pathname to another
show program.

The executable pathnames you type at the prompts enable you to use the **E**(dit)
command and the **S**(how) command at the LFM main menu. The Options Setup portion
of the menu enables you to select several LFM operating and display features options.

$\hookrightarrow$

Function Key Commands

Refer to the Help screens available at this menu by pressing the **F1** key for information on completing the LFM pathnames and options setup process.

LFM Colors Menu

Pressing the **C** key at the LFM Setup Commands menu causes LFM to display the *Screen Color Setup* menu at which you can change the colors of the LFM menus displayed by a color monitor connected to your TravelMate 3000 or change the gray shades of your built-in LCD screen.

Refer to the Help screens available at this menu by pressing the **F1** key for information on making LFM color choices.

Execute Commands Menu

Pressing the **E** key at the LFM Setup Commands menu causes LFM to display the *Execute Commands Setup* menu at which you can type the filename extension, program pathname, and prompting parameters for executable programs you want to set up to respond to the **F9** Go key described previously.

Refer to the Help screens available at this menu by pressing the **F1** key for information on using the Execute Commands Setup menu.

Character Key Commands

The upper right quadrant of the LFM main menu lists the commands you can use to manipulate the directories and files displayed on the main menu. if the Commands box is not displayed, press the **F4** key and LFM replaces the drive statistics display with the Commands box.

To execute a command press the ↑ and ↓ keys to highlight the directory/filename to which you want to apply the command and then press the first letter of the command name listed in the box (except the **Esc** key) to start the command.

Note: Many of the character key commands are capable of operating on multiple files and directories. See 'Multiple File Operations" at the end of this chapter for information.

Attr (Attribute) Command

To set or change file attributes, highlight the filename on the LFM listing and press the **A** key at the LFM main menu. LFM places an "A" to the left of the highlighted file and prompts you at the bottom of the screen

Attributes: [Y]es, [N]o, [I]gnore: [I] arch
[I] rdonly [I] sys [I] hide

Press the → and ← keys to move the cursor to the attribute you want to change. Then press the **Y** key to set the attribute for the highlighted file, or press the **N** key to delete a previously set attribute, or press the **I** key to leave the attribute unchanged.

When you have changed the attributes), press the **Enter** key to complete the process. LFM then changes the "Attr" (Attribute) column of the highlighted file to reflect your selections.

arch (Archive) Attribute

Setting a file's Archive attribute affects how MS-DOS and some application programs create a back-up file when you make changes to the file.

Character Key Commands

rdonly (Read Only) Attribute

Setting a file or directory to Read-Only protects the file from any changes or editing.
The file cannot be written to or deleted from the storage device (hard disk or floppy).

sys (System) Attribute

The System attribute is used for system files (.Sys) required to start and run your
computer. Usually only a user familiar with programming should modify this attribute.
System files are hidden in MS-DOS directory (DIR command) listings, but LFM *does*
display system files.

hide (Hide File) Attribute

The Hide attribute "hides" the file from the MS-DOS DIR, TYPE, and PRINT
commands; the file cannot be displayed, read, or printed. However, LFM does display,
show, and print "hidden" files.

Copy Command

The Copy command enables you to copy the file you have highlighted, tagged files (see
"Multiple File Operations" later in this chapter), or an entire directory to another
directory or to the floppy drive.

To copy a file or directory, highlight the file or directory name you want to copy and
press the **C** key. LFM prompts at the bottom of the screen

Path: [C:\   ]

Type the pathname where you want the directory/file copied to and press the **Enter** key.

If you do not type a new drive letter or directory name, LFM copies the file or directory
to the current drive or directory.

If you do not type a new filenarne, LFM assumes you want to use the existing filename. You also can copy a file/directory to another name you type at the Path: prompt.

You also can create a new directory while copying. At the Path: prompt type the new directory name as part of the pathname and press the **Enter** key. LFM prompts at the bottom of the screen

Directory doesn't exist, CREATE? [Y]
Press the **Y** key if you want LFM to create the new directory.
If you attempt to copy a file using the same filename under a different directory, LFM prompts at the bottom of the screen

Copy file : [R]eplace, [A]ppend, [S]kip

To this prompt do one of the following.

❑   Press the **R** key if you want LFM to delete the existing file and replace it with the highlighted file.

❑   Press the **A** key if you want LFM to append (add) the highlighted file to the end of the existing file. Use this option if you want to combine multiple files into one file.

❑   Press the **S** key if you want LFM to abort the Copy process.

Delete Command

The Delete command enables you to delete the file you have highlighted, tagged files (see "Multiple File Operations" later in this chapter), or an entire directory and all files stored in the directory.

To delete a file, highlight the file you want to delete and press the **D** key. LFM prompts at the bottom of the screen

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Character Key Commands

Are you sure? [N]

If you are certain you want to delete the file, press the **Y** key. LFM deletes the file and removes the filename from the listing. If you do not want to delete the file, press the **N** key or the **Enter** key, and LFM aborts the Delete operation.

To delete an entire directory of files, highlight the directory name you want to delete and press the **D** key. LFM prompts you at the bottom of the screen

Delete Directory and ALL Subfiles: [N]

If you are certain you want to delete the directory and all its files, press the **Y** key. LFM displays a second prompt to make sure you want to delete a directory

Are you sure? [N]

If you still are certain you want to delete the directory, press the **Y** key. LFM deletes the directory and its files and removes the directory name from the listing. If you do not want to delete the directory, press the **N** key or the **Enter** key, and LFM aborts the Delete operation.

Edit Command

The Edit command loads the highlighted file and the word processing or editing program whose pathname you entered using the F10 Setup function key described previously. You must have installed your word processor or editor on the hard disk drive (drive C).

LFM does not provide a word processing program; however, the EDLIN line editor program is available under the MSDOS directory on the hard disk. See the *MS-DOS User's Manual* furnished with your computer for information on loading and using the EDLIN program.

Character Key Commands

Excl (Exclude) Command

The Exclude command works in conjunction with the include command described later in this chapter. Both commands are used for multiple file operations where you want to simultaneously execute one command (such as Copy or Delete) on a number of files in one operation. The Exclude command permits you to selectively exclude filenames from files you tagged using the Include or Tag commands, both described later in this chapter.

If you have not tagged any files using the Tag or the Include commands, the Exclude command takes no action. If you have tagged files-indicated by the >> symbol appearing in the left margin by the filename-you can exclude them from the listing by pressing the **X** key at the main menu. LFM then prompts you at the bottom of the screen

Exclude: [A]ttribute, [E]arlier Date, [L]ater
Date, [S]elect all, [I]gnore:

> **Note:** This prompt permits you to exclude certain files from a list of tagged files according to the parameters in the above prompt.

If you want to exclude (untag) all included names, press the **Enter** key or the **S** key.

Attribute

To exclude (untag) all files with certain attributes, press the **A** key at the Exclude prompt and LFM prompts you at the bottom of the screen

Attributes: [Y]es, [N]o, [I]gnore: [I] arch
[I] rdonly   [I] sys   [I] hide

Character Key Commands

This prompt enables you to exclude all files with the same attributes. For example, if you want to exclude all read-only files in a directory, move the cursor to the *rdonly* option and press the **Y** key to select read-only files. Then press the **Enter** key twice. If you want to exclude all archived files, type **Y** with the cursor in the arch box. You also can select any combination of attributes.

Earlier Date

The *Earlier Date* prompt enables you to exclude all files dated earlier than the date and time you select. Press the **E** key at the *Exclude* prompt and LFM prompts

File Date: [12/21/90] Time: [12:34:56]

At this prompt (the current file or directory date and time is first displayed) type the date or time which represents the *latest* date and/or time you want; LFM excludes all files dated *earlier* than that date. Then press the **Enter** key and LFM prompts at the bottom of the screen

File pattern: [*.*   ]

At the File pattern prompt type the *.* wildcard characters if you want to exclude files only by date, or type filename extensions (for example,*.TXT) or filename fragments-plus wildcards to further delimit the Exclude function. See 'Find Command' described previously and your *MS-DOS User's Manual* for discussions of wildcard use.

Later Date

Pressing the **L** key at the *Exclude* prompt displays the same File Date prompt as the *Earlier* Date prompt described above, and works the same except LFM excludes all files after the date you specify.

Character Key Commands

Select All

Press the **S** key (or the **Enter** key) at the *Exclude* prompt to exclude (and untag) all files in the directory. This option is particularly useful if you first select all files and then use the Exclude command to deselect certain files from the included list.

Ignore

Press the **I** key at the *Exclude* prompt if you do not want to use any of its options to select files. LFM then prompts at the bottom of the screen

File pattern: [*.*   ]

At this prompt you can type file patterns for LFM to use to exclude certain files. For example, the filename pattern *.TXT excludes all files with that extension in the tagged listing.

The * character (and the ?) are called *wildcard* characters. You can use these two characters to create the pattern for LFM to conduct the search. See 'Earlier Date," "Find Command' described below, and your *MS-DOS User's Manual* for discussions of file patterns and wildcard characters.

Find Command

The Find command helps you find files on the current (displayed) directory, according to their filename/extension pattern. Pressing the **F** key at the main menu causes LFM to prompt at the bottom of the screen

Find file: find the [F]irst or [N]ext:

If you select the *[F]irst* option by pressing the **F** key, LFM looks for the first occurrence of the filename pattern in the listing, regardless of where the main menu highlight is located.

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Character Key Commands

If you select the *[N]ext* option by pressing the **N** key, LFM

looks for the first occurrence of the filename pattern below the main menu highlight.

After you press the **F** key or the **N** key, LFM prompts at the
bottom of the screen

File pattern: [*.*   ]

At this prompt enter the filename pattern for which you are searching. For example, to
find the first or next file with a **.TXT** extension, type

*.TXT

and press the **Enter** key. LFM then searches for the first or next filename with the
.TXT extension. If you wanted to find the first or next filename beginning with the
characters MI, type MI*.* and LFM would look for the first or next filename beginning
with those two characters.

Incl (Include) Command

The Include command enables you to tag (select) a number of files from the current
(displayed) directory listing for later multiple execution of commands such as Delete and
Copy. You can tag all files in a directory or certain files according to date, file attribute,
or file pattern. You can use the Exclude command in con unction with the Include
command for even greater selectivity (see the "Exclude Command" earlier in this
chapter).

Press the **I** key at the main menu and LFM prompts at the bottom of the screen

Include: [A]ttribute, [E]arlier Date, [L]ater
date,   [S]elect all,   [I]gnore:

Character Key Commands

Attribute

To include (tag) all files with certain attributes, press the **A** key at the *Include* prompt and LFM prompts at the bottom of the screen

Attributes: [Y]es,   [N]o,   [I]gnore: [I] arch
[I] rdonly   [I] sys   [I] hide

This prompt enables you to include all files with the same attributes. For example, if you want to include all read-only files in a directory, move the cursor to the rdonly option and press the **Y** key to select read-only files, then press the **Enter** key twice. If you want to include all archived files, type **Y** with the cursor in the arch box. You can also select any combination of attributes.

Earlier Date

This prompt enables you to include all files dated earlier than the date and time you select. Press the **E** key at the Include prompt and LFM prompts you

File Date: [12/21/90] Time: [12:34:56]

LFM first displays the current file or directory date and time is first displayed. Type the date or time which represents the latest date or time you want: LFM includes all files dated earlier than that date. Then press the **Enter** key and LFM prompts at the bottom of the screen

File pattern: [*.*   ]

At the *File pattern* prompt type the *.* wildcard characters if you want to include files only by date, or type filename extensions (for example, * .TXT) or filename fragments-plus wildcards to further delimit the Include function. See 'Find Command" described previously and your *MS-DOS User's Manual* for discussions of wildcard use.

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Character Key Commands

Later Date

Pressing the **L** key at the *Include* prompt displays the same *File Date* prompt as the *Earlier Date* prompt described previously, and works the same except LFM includes all files after the date you specify.

Select All

Press the **S** key (or the **Enter** key) at the *Include* prompt to include (and tag) all files in the directory. This option is particularly useful if you first select all files and then use the Exclude command described previously to deselect certain files from the included list.

Ignore

Press the I key at the *Include* prompt if you do not want to use any of its options to select files. LFM then prompts at the bottom of the screen

File pattern: [*.*   ]

At this prompt you can type file patterns to use to include files. For example, type the filename pattern *.TXT to include all files with that extension in the tagged listing. See "Earlier Date," the "Find Command" described previously, and your *MS-DOS User's Manual* for discussions of file patterns and wildcard characters.

Print Command

The LFM Print command enables you to send the highlighted file to your system printer or other device connected to your computer via the LPT or COM ports. Using the F 10 Setup key, the LFM Setup Commands, and the *Pathnames/Options Setup* screen described previously, you can select the printer output port (LPT parallel or COM serial) and whether or not to use the MS-DOS PRINT command.

Character Key Commands

The LFM Print command prints your file as recorded, with no pagination or perforation-skip capabilities. You must embed the appropriate printer control characters and escape sequences in your file to control your printer (see your printer's user manual). Since most application programs provide their own printing facility, you may find their print functions more convenient to use.

Quit Command

The Quit command at the main menu erases LFM from RAM and returns control to MS-DOS or Laptop Manager, depending on how you loaded LFM. If LFM is in split-screen mode, LFM quits the current screen of the two screens.

To quit LFM or one of the split screens, press the Q key at the main menu. LFM prompts at the bottom of the screen

Are you sure?   [N   ]

Press the Y key if you want to quit LFM. Press the Enter key or the N key if you want LFM to remain on screen.

Rename Command

The Rename command enables you to rename the highlighted file or directory using standard MS-DOS naming rules. (See the *MS-DOS User's Manual* furnished with your computer for the rules.) You also can use the Rename command to *move* the highlighted file to another directory or drive under the same or a new filename. However, you cannot move a directory in this manner; you can only rename the current directory.

You can use the Rename command instead of the Copy command when you want to delete the files from their present area while copying the files to another area.

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Character Key Commands

To rename or move the highlighted file or directory, at the main menu press the **R** key and LFM prompts at the bottom of the screen

Path: [FILENAME.EXT   ]

If you only want to change the name of the file or directory and not move it, type the new name, using MS-DOS file naming conventions, and press the **Enter** key.

If you want to move the file or change the name, type the entire pathname where you want the file moved, including the new or existing filename, and press the **Enter** key. For example, if you want to move MYFILE.TXT to the MEMOS directory on drive A and change the name, you would type:

A:\MEM0S\FILE1.TXT

LFM would delete MYFILE.TXT from the current directory and save it to the FILE= file under the MEMOS directory on drive A. You also can move files to other directories or subdirectories on the same drive.

Show Command

The Show command has two primary purposes: to display the data in a highlighted file for you to view and to display a subdirectory listing.

Showing a Subdirectory

To view a subdirectory, move the highlight to the directory name and press the **S** key. LFM displays the selected directory listing. To return to the next higher directory level, press the **Esc** key. If the root directory is currently displayed, LFM takes no action.

Character Key Commands

Showing a File

To view a Me, move the highlight to the desired filename and press the **S** key. You cannot edit or modify the file using the Show command (unless you specified a word processor or editor program for the Show command).

You can use the **PgUp** and **PgDn** keys to page through the file, the ↑ and ↓ keys to scroll up and down one line at a time, and the ← and → keys to scroll left and right four lines at a time.

Press the **Home** key and the **End** key to display the beginning and end of the file, respectively. Press the **Esc** key to return to the LFM directory listing.

Tag Command

The Tag command enables you to tag (include) directories and files, one at a time, for later multiple file operations. To tag a directory or file, move the highlight to the desired name and press the **T** key. LFM displays the >> symbol in the left margin opposite the name to denote that the directory or file is tagged; LFM then moves the highlight down to the next name.

If you want to "untag" (exclude) a name, move the highlight to the name and press the **T** key. LFM removes the >> tag symbol. If you want to untag all tags, use the Exclude command or press the **F3** (Reread) key.

Up (ESC Key) Command

The Up command displays the parent directory of the currently displayed directory. Press the **Esc** key at any listing and LFM displays the next higher directory. If the root directory is currently displayed, LFM takes no action.

Character Key Commands

Update Command

The Update command permits you to change the *Last Up*date date and time listing for individual files or multiple tagged files (but **not** subdirectories). At the main menu press the **U** key and LFM prompts at the bottom of the screen

File Date: [01/01/90]   Time: [00:00:59]

Type the new date or time you want and press the **Enter** key. LFM changes the date on the *Last Update* column listing to your new date.

Multiple File Operations

You can perform the same character key command on two or more directories or files simply by using the Tag command, Include command, or Exclude command to choose the names and then activate the command. The following commands operate on more than one file:

❑   Attribute command

❑   Copy command-be careful with your pathname; do not supply a filename when copying multiple files; make use of MS-DOS wildcard characters * and ? (see your *MS-DOS User's Manual*). A *Select each* option enables you to choose to copy each file or directory and to *Replace* or *Append* the file.

❑   Delete command-be cautious using the Delete command with multiple files; examine the tagged names carefully before answering the final 'Are you sure?" prompt

❑   Print command-places selected files in print queue in order displayed at main menu from top to bottom

❑   Update command

❑   Rename command-you can use the Rename command to *move* more than one selected file to another directory or drive: in the pathname, type only a drive or directory name, and use MS-DOS * and ? wildcard characters

❑   Refer to the individual descriptions of these commands earlier in this chapter and, where the directions refer to one file, assume that the directions affect all tagged files and directories.

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Multiple File Operations

Tagging Files for Multifile Operation

To select files for multifile commands, you can use the Tag command to individually tag each file in the main menu listing or the Include and Exclude commands to select a large number of related names or extensions. You also can use the *Include All* command to tag all files and then selectively exclude (untag) files by pressing the T(ag) key.

If you want to include or exclude directories, on the F10 *LFM Setup Commands*, *Options Setup* submenu, set the *INCLUDE Directories* item to Y(es). See "F10 Setup Key" earlier in this chapter for details on the Setup commands.

Refer to the individual descriptions of these commands earlier in this chapter for more details.

Split Screen

You can simplify use of the Copy command using the LFM split screen mode (press the **F5** key at the main menu to enter split screen mode). For example, using a split screen you can view and tag the source files and directories on one screen and the destination files and directories on the other screen. See "Copy Command" earlier in this chapter for details.

Copying Multiple Files

When you tag multiple files for copying, LFM assumes you want to use the existing filenames under the new destination directory (or drive). Thus you *do not* have to type the MS-DOS wildcard characters in the pathname.

Installing Laptop File Manager

If the Laptop File Manager program has for some reason been deleted from your TravelMate 3000 hard disk, you can install the LFM files from the 3.5-inch *BatteryPro & Productivity Software* floppy furnished with your computer.

Insert the *BatteryPro* floppy into the floppy drive and at the **AA>** prompt, type

INSTALL

and press the **Enter** key. Then respond to the prompts to install the appropriate software for your computer and its options.

After installing the software, you should be able to load LFM from the hard disk, or you can configure Laptop Manager to load LFM from the Laptop Manager main menu as described earlier in this chapter.

VGA External Monitor Utilities

This chapter tells you about

❑ Capabilities and operation of the TravelMate 3000 VGA software when using an external monitor

❑ Technical data for users wanting to program the VGA enhanced modes

Contents

Capabilities

Your TravelMate 3000 Notebook Computer supports several enhanced modes beyond the VGA standard, including the ability to display 132 columns of text and 256-color graphics at resolutions of 640 x 480 and 640 x 400 on any supported monitor. In addition, the TravelMate 3000 supports 800 x 600 resolution, 16-color graphics on a multifrequency monitor and 1024 x 768 resolution, 2-, 4-, or 16-color graphics on an 8514 or compatible monitor.

To take advantage of these enhancements, your TravelMate 3000 includes software support for several popular application programs. The following sections describe the procedures necessary to install these programs so they can take full advantage of your TravelMate 3000's enhanced capabilities.

The TravelMate 3000 external monitor utilities are furnished on a 3.5-inch floppy named *VGA Utilities.* On the floppy is a program named *BRIDGE.COM*, which enables you to use software written for most existing VGA cards that use 800 x 600 and 132-column modes. This program translates the set-mode request into the modes supported by your TravelMate 3000 VGA display software.

The drivers described in this chapter assume you are using a color VGA configuration. If you are using a monochrome VGA monitor, use the VGA.EXE utility to switch from monochrome VGA mapping to color mapping before using the drivers. The command VGA COLOR will set your TravelMate 3000 to color mapping.

Extended 1024 x 768 Graphics Mode

The TravelMate 3000 is capable of supporting a 1024 x 768 graphics mode with 2, 4, and 16 colors. This high resolution mode is interlaced and requires the use of an IBM 8514 or equivalent interlaced monitor.

Extended 800 x 600 Graphics Mode

Your TravelMate 3000 display software can drive a multifrequency display in an extended graphics mode with 800 dots horizontally by 600 dots vertically in 16 simultaneous colors. This increased resolution effectively provides 56 percent more information than standard VGA modes with software that supports this mode.

Note: The extended resolution 800 x 600 graphics mode of your TravelMate 3000 requires a multifrequency monitor. The 1024 x 768 graphics mode requires an IBM 8514 or compatible interlaced monitor.

The TravelMate 3000's 800 x 600 graphics mode is not supported on the IBM PS/2 8503, 8512, 8513 or 8514 or equivalent fixed-frequency displays.

You may need to adjust your multifrequency monitor to display the 800 x 600 graphics mode properly. Use the vertical and horizontal size and position controls on your monitor to display the entire 800 x 600 graphics mode image without distortion.

Extended 256-Color 640 x 400 and 640 x 480 Graphics Modes

The TravelMate 3000 can display up to 256 simultaneous colors at a resolution of 640 x 480 dots. This mode gives five times the resolution of standard VGA 256-color graphics.

The TravelMate 3000 also can display up to 256 simultaneous colors at a resolution of 640 x 400 dots. This mode gives you four times the resolution of standard VGA 256color graphics.

Capabilities

132-Column Text Modes

Your TravelMate 3000 supports two 132-column text modes on either fixed-frequency or multifrequency monitors. One mode displays 25 rows of 132-column-wide text. The second mode displays 43 rows of 132-column-wide text. These modes display large amounts of information at one time. Compared to standard 80-column by 25-row text modes, these two modes show 65 percent and 184 percent more text on your monitor.

These extended modes require specific software support to take advantage of their capabilities in software applications.

Using the VGA Utility

Most software that is compatible with IBM's Personal System/2, VGA, or EGA will run automatically on your TravelMate 3000. Just turn on your computer and install your application program for PS/2 model 50, 60, 70 or 80 video, VGA, or EGA as instructed by the program's documentation.

Configuring Your Application Program

Many application programs include an installation or configuration program to prepare them for operation on particular hardware. Most newer programs are able to *run* in the default VGA configuration of your TravelMate 3000.

However, some programs are written specifically for certain non-VGA or non-EGA video hardware so you may have to configure your TravelMate 3000 to behave identically to the video board needed by the particular software. For this purpose, your TravelMate 3000 *VGA Utilities* floppy includes a utility to configure your TravelMate 3000 to behave like each of the IBM standard video devices. This utility, called VGA.=, is described in the following section.

The following table lists the fully compatible video standards supported by the TravelMate 3000 and the video modes and resolutions available under each video standard.

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Using the VGA Utility

Video Standards Supported by TravelMate 3000

Standard Mode	Resolution	Simultaneous Colors (1)	Mapping (2)
VGA, PS/2 Display Adapter including MCGA and EGA modes (default)			
Monochrome Text	80 columns x 25 rows	-	Monochrome
Color Text	80 columns x 25 rows	16	Color
	40 columns x 25 rows	16	Color
132-Col. Text (4)	132-columns x 25 rows	16	Color
	132-columns x 43 rows	16	Color
	132-columns x 25 rows	-	Monochrome
	132-columns x 43 rows	-	Monochrome
Graphics	320h x 200v (3)	4	Color
	640h x 200v (3)	2	Color
	320h x 200v (3)	16	Color
	640h x 200v (3)	16	Color
	640h x 350v	16	Color
	640h x 350v	-	Monochrome
	320h x 200v (3)	256	Color
	640h x 480v	2	Color
	640h x 480v	16	Color
Extended Graphics (4)	1024h x 768v	2	Monochrome
	1024h x 768v	4	Color
	1024h x 768v	16	Color
	800h x 600v	16	Color
	640h x 400v	256	Color
	640h x 480v	256	Color

Video Standards Supported by TravelMate 3000 (continued)

Standard Mode	Resolution	Simultaneous Colors (1)	Mapping (2)
CGA, Color/Graphics	**Adapter**		
Color Text	80 columns x 25 rows	16	Color
	40 columns x 25 rows	16	Color
Graphics	320h x 200v (3)	4	Color
	640h x 200v (3)	2	Color
Hercules Graphics Card including MDA modes			
Monochrome Text	80 columns x 25 rows	-	Monochrome
Graphics	720h x 348v	-	Monochrome

Notes to the table:

(1) 'Simultaneous colors" refers to the number of colors or shades that can be displayed at one time.

(2) This column refers to the old style display the mode was originally designed for. The 800h x 600v graphics modes require a multifrequency monitor and 1024h x 768v graphics modes require an 8514 or equivalent compatible monitor.

(3) The 200-line vertical resolution modes are double-scanned to display 400 lines on screen.

(4) These modes require use of application-specific drivers included on your *VGA Utilities* floppy or special drivers furnished with your application program.

Installation Hints

❑ The following software installation tips may help you achieve the best monitor image.

❑ The best display images usually are achieved by installing your application programs for the highest resolution mode available.

Using the VGA Utility

❑ Some applications automatically detect what type of video card and monitor combination is installed and configure themselves to take best advantage of the available hardware.

❑ Install your software for VGA, PS/2 video, or EGA, if possible. This permits your software to run on your TravelMate 3000 in start-up configuration.

❑ If your software does not specify a VGA, PS/2, or EGA option and you are using a color analog monitor, try installing the application for "color" if available. This usually works in the TravelMate 3000's default color mode on color monitors.

❑ If your application still does not display video properly, try using the VGA.EXE utility to set the TravelMate 3000 to a completely hardware-compatible video standard (such as CGA or Hercules) that might be supported by your application. The VGA.EXE utility is described later in this chapter.

Notes on Operation

The only way the TravelMate 3000 will run application programs that will not run on VGA hardware is to configure the computer to operate in another mode, such as CGA or Hercules, by way of the VGA.EXE utility.

Hercules-compatible applications and some CGA-compatible games require using the VGA.EXE utility to set the TravelMate 3000 to the appropriate video standard.

Applications requiring a specific video mapping may require using the VGA.EXE utility to set the TravelMate 3000 to color or monochrome VGA mode, as needed.

The default mapping of your TravelMate 3000 display software depends on the type of external monitor you are using. If you are using a color display such as the IBM PS/2 Color Display model 8514, the default mapping will be color. If you are using a monochrome analog display such as the IBM PS/2 Monochrome Display model 8503, the default mapping will be monochrome.

TravelMate 3000 VGA Software

The *VGA Utilities* floppy furnished with your TravelMate 3000 contains several programs designed to help you operate your external monitor most efficiently.

VGA.EXE, enables you to select a video hardware standard either from a menu or directly from the DOS prompt line.

Various drivers that let popular application programs take advantage of your TravelMate 3000's extended graphics and 132-column text modes are supplied on the furnished *VGA Utilities* floppy. For driver installation instructions, load the VGA HELP file included on the floppy by typing at the MS-DOS **C:\>** prompt

A:\VGAHELP

and pressing the **Enter** key.

You can copy the utility programs such as VGA.EXE to your hard disk, and you should make back-up copies of your TravelMate 3000 *VGA Utilities* floppy.

Note: To switch your TravelMate 3000 from the built-in LCD to a connected external monitor, use the ALTVID command at the MS-DOS **C:\>** prompt.

Using VGA.EXE

The VGA.EXE utility permits you to control which video standard the TravelMate 3000 is emulating. The TravelMate 3000 default video standard is always VGA, but VGA.EXE enables you to override this setting and choose VGA, CGA,

Using the VGA Utility

MDA, or Hercules video standards as well and switch between 'color" and -monochrome" VGA modes.

VGA.EXE also lets you LOCK the board into a particular configuration in order to reboot to that configuration rather than the default VGA mode.

To invoke VGA.EXE, insert the *VGA Utilities* floppy into the floppy drive and at the MS-DOS **C:\>** prompt, type

A: \VGA

and press the **Enter** key. VGA displays a simple menu listing some of the options available. Use the T and I keys to select the feature you want and press the **Enter** key.

To quit the VGA program, choose the *Exit to Operating System* option and press the Enter key or simply press the **Esc** key.

You may also load VGA.EXE from the DOS prompt line, thus bypassing the menu. This is useful if you want to incorporate VGA.EXE commands into a batch file.

The following commands enable you to use VGA.EXE at the MS-DOS **C:\>** prompt.

VGA Utility Commands

VGA   Displays the VGA.EXE menu.

VGA VGA   Sets the computer to color VGA operation. This is the default configuration of the TravelMate 3000.

VGA EGA   Sets the computer to EGA emulation. This emulates the mode video capabilities of the IBM Enhanced Graphics Adapter. A warm boot **(Ctrl-Alt-Del)** returns the computer to VGA mode.

VGA CGA   Sets the computer to CGA emulation. This emulates the video mode capabilities of the IBM Color/Graphics Adapter. A warm boot **(Ctrl-Alt-Del)** returns the computer to VGA mode.

VGA
Utility Commands (continued)

VGA MDA   Sets the computer to emulate the Hercules Graphics Card with no graphics memory allocated. This configuration is equivalent to IBM's text-only Monochrome Display Adapter. A warm boot **(Ctrl-Alt-Del)** returns the computer to VGA mode.

VGA HERC   Sets the computer to emulate the Hercules Graphics Card with one page of graphics memory allocated. This configuration is equivalent to using the Hercules HGC HALF command. A warm boot **(Ctrl-Alt-Del)** returns computer to VGA mode.

VGA MONO   Changes the computer to monochrome VGA mapping as needed. Allows you to use video modes that use monochrome mapping such as monochrome text mode.

VGA 8025   Switches the computer to 25-line, 80-column text mode. This is the default configuration of the TravelMate 3000. A warm boot **(Ctrl-Alt-Del)** restores this mode.

VGA 8043   Switches the computer to enhanced 80-column text mode. This results in 50 lines in VGA mode, or 43 lines in EGA mode.

VGA 13225   Switches the computer to color, 25-line, 132-column text mode. This mode is only for use with specific application programs that have been designed to take advantage of this mode's extended text capabilities.

VGA 13243   Switches the computer to color, 43 line, 132-column text mode. This mode is only for use with specific application programs that have been designed to take advantage of this mode's extended text capabilities.

VGATOP   Aligns the active display with the top of the physical screen. Use this if an application switches to a video mode that truncates the bottom of the display.

VGA CENTER   Aligns the active display with the center of the physical screen. This is the default configuration of the TravelMate 3000.

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Using the VGA Utility

VGA Utility Commands (concluded)

VGA LOCK   Locks the current video standard so that it will survive a warm boot. Can be used in conjunction with another parameter to lock that particular mode. However, this command does not lock enhanced text modes.

Example: VGA CGA LOCK allows the computer to survive a reboot with the computer configured as a color/graphics adapter.

VGA
REBOOT   Locks and reboots the currently selected video standard so that the system will re-initialize in the current video standard. This command is equivalent to the VGA LOCK command followed by a warm reboot **(Ctrl-Alt-Del).** Can be used in conjunction with another parameter to lock and reboot that particular mode. However, this command does not lock enhanced text modes.

Example: VGA CGA REBOOT will switch the computer to CGA mode and reboot the system in CGA mode. The computer will be locked in the selected mode until the VGA.EXE utility is used again to select a different mode. This option should be used for changing the video standard when sophisticated drivers or TSR utilities are loaded into system memory. When the system reboots, these drivers or utilities must be reloaded under the selected mode.

Any specific video mode command such as VGA CGA will unlock the computer unless used with the LOCK or REBOOT parameter. If you make a mistake in typing the VGA command, the program gives you the option of using the VGA menu or returning to MS-DOS.

Note to Microsoft and IBM PS/2 Mouse Users

If you are installing your mouse driver by way of a program such as MOUSE.COM, or your mouse driver installs via the CONFIG.SYS file, you may have problems when using VGA.EXE to switch to non-VGA Hercules, CGA or MDA modes.

When using the Microsoft Mouse driver (version 6.1 or later) or the IBM PS/2 Mouse driver, you must use a special procedure when switching from VGA mode to Hercules or CGA modes. Rather than choosing "Set Hercules Mode" then "Exit to DOS," you should choose "Set Hercules Mode" then execute the menu option to "Reboot System in Current Mode."

This option permits your system to re-initialize in the selected video mode. At this point you should re-install your mouse, or if your mouse is installed in CONFIG.SYS, it will re-install automatically. You may also choose the option to "Reboot System in Current Mode" from the MS-DOS command line with the statement VGA REBOOT.

Installing Utilities

The *VGA Utilities* floppy furnished with your TravelMate 3000 provides a special Help menu to help you install various application programs supported by enhanced VGA display modes. To view the Help menu, insert your *VGA Utilities* floppy into the floppy drive, and at the MS-DOS **C:\>** prompt type

A:\VGAHELP

and press the **Enter** key. When the Help menu appears, move the highlight to the name of the application program you want to install. The menu then shows installation instructions for that program.

You can copy the VGAHELP file to your hard disk drive by typing at the MS-DOS **C:\>** prompt

COPY A:\VGAHELP.* C:\UTILS

and pressing the **Enter** key.

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Using the VGA Utility

The VGAHELP program is installed on your hard disk drive at the factory. However, if it has been deleted from your hard disk, you can restore it to your hard disk drive from the *VGA Utilities* floppy by typing at the MS-DOS **C:\>** prompt

COPY A:\VGAHELP.* C:\UTILS

and pressing the **Enter** key.

VGA and Extended VGA Programming

This section describes how to access the enhanced modes of your TravelMate 3000. The information in this section is intended for users familiar with assembly language programming. An understanding of this information is not necessary for normal operation of your TravelMate 3000.

The VGA standard supports a variety of video modes. These video modes can be accessed through standard video BIOS calls from assembly language as well as high-level language routines.

When you start up in MS-DOS, your computer is usually in standard 80-column text or 'alphanumeric' mode. On a color system this is mode 3+. VGA 640 x 480 dot 16-color graphics is mode 12H. The following table lists the standard VGA video modes available with your TravelMate 3000.

Standard VGA Video Modes

Mode (hex)	Type	Colors (1)	Columns	Rows	Buffer	Char. Size(2)	Res.(3)
0	text	16/256 KB	40	25	B8000	8 x 8	320 x 200
0*	text	16/256 KB	40	25	B8000	8 x 14	320 x 350
0+	text	16/256 KB	40	25	B8000	9 x 16	360 x 400
1	text	16/256 KB	40	25	B8000	8 x 8	320 x 200
1*	text	16/256 KB	40	25	B8000	8 x 14	320 x 350
1+	text	16/256 KB	40	25	B8000	9 x 16	360 x 400
2	text	16/256 KB	80	25	B8000	8 x 8	640 x 200
2*	text	16/256 KB	80	25	B8000	8 x 14	640 x 350
2+	text	16/256 KB	80	25	B8000	9 x 16	720 x 400
3	text	16/256 KB	80	25	B8000	8 x 8	640 x 200

Advanced Monitor Operations

Standard VGA Video Modes (continued)

Mode (hex)	Colors Type	(1)	Columns	Char. Rows	Buffer	Size(2)	Res.(3)
3*	text	16/256 KB	80	25	B8000	8 x 14	640 x 350
3+	text	16/256 KB	80	25	B8000	9 x 16	720 x 400
4	graph.	4	40	25	B8000	8 x 8	320 x 200
5	graph.	4	40	25	B8000	8 x 8	320 x 200
6	graph.	2/256 KB	80	25	B8000	8 x 8	640 x 200
7	text	4	80	25	B0000	9x 14	720 x 350
7+	text	4	80	25	B0000	9 x 16	720 x 400
0	graph.	16/256 KB	40	25	A0000	8 x 8	320 x 200
E	graph.	16/256 KB	80	25	A0000	8 x 8	640 x 200
F	graph.	4	80	25	A0000	8 x 14	640 x 350
10	graph.	16/256 KB	80	25	A0000	8 x 14	640 x 350
11	graph.	2/256 KB	80	30	A0000	8 x 16	640 x 480
12	graph.	16/256 KB	80	30	A0000	8 x 16	640 x 480
13	graph.	256/256 KB	40	25	A0000	8 x 8	320 x 200

Notes to the table:
Default modes are 3+ for color monitors and 7+ for monochrome monitors.

(**1**)   Colors: Where two numbers are given, the first is the number of colors available at one time; the second number is the total number of possible colors. For mono modes this number refers to the number of attributes.

(**2**)   Character Size: The size of the matrix that contains each text character.

Advanced Monitor Operations

Your TravelMate 3000 display software adds 12 additional modes to the standard VGA modes. These modes are the 1024 x 768 and 800 x 600 extended VGA graphics modes, the 640 x 400, 256-color graphics and the 132-column by 25-row and 43-row text modes. These modes each have been assigned mode identification numbers, summarized in the following table.

TravelMate 3000 Extended VGA Video Modes

Mode (hex)	Type	Colors (1)	Columns	Rows	Buffer	Char. Size (2)	Res.	Equip. Flag (3)
54†	text	16/256 KB	132	43	B8000	7 x 9	924 x 387	color
54*	text	16/256 KB	132	43	B8000	8 x 9	1056 x 387	color
55†	text	16/256 KB	132	25	B8000	7 x 16	924 x 400	color
55*	text	16/256 KB	132	25	B8000	8 x 16	1056 x 400	color
56†	text	4	132	43	B0000	7 x 9	924 x 387	mono
56*	text	4	132	43	B0000	8 x 9	1056 x 387	mono
57†	text	4	132	25	B0000	7 x 16	924 x 400	mono
57*	text	4	132	25	B0000	8 x 16	1056 x 400	mono
58	graph.	16/256 KB	100	75	A0000	8 x 8	800 x 600	color
59	graph.	2	100	75	A0000	8 x 8	800 x 600	mono
5A	graph.	2	128	48	A0000	8 x 16	1024 x 768	mono
5B	graph.	4	128	48	A0000	8x 16	1024 x 768	color
5D	graph.	16	128	48	A0000	8 x 16	1024 x 768	color
5E	graph.	256/256 KB	80	25	A0000	8 x 16	640 x 400	color
5F	graph.	256	80	30	A0000	8x 16	640 x 480	color
60‡								
61‡								
6A‡	graph.	16/256 KB	100	75	A0000	8 x 8	800 x 600	color
6B‡	graph.	2	100	75	A0000	8 x 8	800 x 600	mono

Advanced Monitor Operations

Notes to the table:

(1)   Colors: Where two numbers are given, the first is the number of colors available at one Lime; the second number is the total number of possible colors. For mono modes this number refers to the number of attributes.

(2)   Character Size: The size of the matrix that contains each text character.

(3)   Equipment Flag: Required setting of the BIOS data value at address 40: 1 0 bits 5 and 4. (0, 1 or 1,0 = color, 1, 1 = mono)

‡   VESA modes (different monitor timings from modes 58 and 59).

†   Fixed frequency monitor setting.

∗   Multifrequency monitor setting.

References

Programming the TravelMate 3000 extended VGA modes is similar to programming the standard VGA video modes of the IBM PS/2 VGA and PS/2 Display Adapter. You may want to refer to the following publications for details on programming VGA in general.

IBM Personal System/2 Display Adapter Technical Reference, April 1987, IBM part number 68X2251 S68X-2251-0

IBM Personal System/2 and Personal Computer BIOS Interface Technical Reference, April 1987, IBM part number 68X2260 S68X-2260-00

Programmer's Guide to PC and PS12 Video Systems, by Richard Wilton, Microsoft Press, 1987 (ISBN 1-55615-103-9)

Extended BIOS calls are provided to support the TravelMate 3000's extended VGA modes. If you are writing a driver or application that uses the extended VGA modes of the TravelMate 3000, you should use the algorithms and tools described in the file PROGRAM.TXT on the TravelMate 3000 *VGA Utilities* floppy. Read or print this file for details on the recommended methods for programming the TravelMate 3000 VGA software.

External Monitor Troubleshooting

The following are typical symptoms of installation problems and their solutions.

Symptom	Solution
No display	**(1)** Computer not configured appropriately for VGA; configure the application program as instructed in the program's documentation.
	(2) Monitor signal and/or power cable not properly plugged in.
	(3) Monitor not turned on.
	(4) Brightness and/or contrast controls on monitor not adjusted properly.
	(5) LCD still active; use the ALTVID command to switch to external monitor.
F1 CRT or setup error on startup	Setup Program not run. See Chapter 4 of your *TraveIMate 3000 User's Manual*.
Screen displays distorted images or screen goes blank when software is executed	**(1)** Software is not configured for or compatible with computer's current video standard configuration. Reconfigure software for VGA or EGA video or set the TravelMate 3000 to a video standard supported by the software. See 'Using the *VGA Utilities*" in this chapter.

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External Monitor Troubleshooting

Symptom	Solution
	(2) Software is configured for a " color mode and the computer is currently operating in " monochrome" mode, or vice-versa. Use the VGA.EXE utility to change mapping mode.
	(3) Check that your monitor was turned on before starting your computer. Your computer may recognize some external color monitors as monochrome when they are turned off during startup. This causes the screen to display data in " monochrome" mapped modes while your software may be configured for "color' operation. Restart your computer with the monitor turned on.
Screen displays distorted image on PS/2 monitor	Your TravelMate 3000 is configured for an older multifrequency monitor via the Setup Program; the *CRT Type* item must be set to match the PS/2 display or equivalent fixed frequency monitor.

External Monitor Troubleshooting

Symptom	Solution
Unable to display 800 x 600	You must have a multifrequency extended graphics monitor to use the extended 800 X 600 graphics mode of the computer If you are using a multifrequency monitor, try adjusting the vertical hold and vertical position adjustments.
Unable to display 1024 x 768 extended graphics	This high-resolution mode is interlaced and requires the use of an IBM 8514 or equivalent interlaced monitor.
Large blank bands at top and bottom of some images on multifrequency monitor; screen image does not fill up entire screen in some modes.	Some multifrequency monitors do not automatically adjust vertical screen size as PS/2 monitors do. Adjust your display for best results.
Diagnostics give a 50 1, 2401 or 7401 video error or some other video error.	The diagnostics disk you are using does not know about the existence of VGA and is testing the TravelMate 3000 as if it were an EGA or some other type of video card. Most diagnostics programs are designed to test specific hardware and do not know how to properly test your VGA software. This error does not necessarily mean that your computer is malfunctioning. Use the TravelMate 3000 diagnostics utility, ADVDIAG.EXE to check the computer (see your *TravelMate 3000 User's Manual*).

This chapter tells you about

❑ The ALARM utility that controls the low-battery and cover-closed alarm beepers

❑ The DATES utility that displays your computer's firmware version and power savings levels

❑ The GETSTAT Utility that tests for the presence of external devices and the computer power source

❑ The MODSCRN program that switches the display from the built-in LCD screen to an external monitor

❑ The RAMDRIVE.SYS device driver that uses part of computer memory as a hard disk

❑ The SETCMOS utility that restores your Setup Program settings in case of a power loss

❑ The MS-DOS SMARTDRV.SYS disk-caching utility

Contents

ALARM Utility

The ALARM utility enables you to turn on or turn off the lowbattery beeper and the cover-closed beeper at the MS-DOS **C:\>** prompt. To view the command and its options, at the MS-DOS **C:\>** prompt type

ALARM

and press the **Enter** key. The utility displays the following screen listing the command options and the current alarm status.

Low Battery Alarm Utility V386SX-An.nn

Copyright (c) 1990 Texas Instruments Incorporated

Usage: - ALARM [/switch]

ALARM   - Shows status of Cover and Low Battery Alarms
ALARM *ION*   - Turns the Cover and Low Battery Alarms On
ALARM /OFF   - turns the Cover and Low Battery Alarms Off

The ALARM utility turns on or turn offs the low-battery and the cover-closed alarm beepers.

You also can add either of the commands to your AUTOEXEC.BAT file to control the alarms when you boot the computer. For example, add the line

ALARM ON

to your AUTOEXEC.BAT file to turn on both alarms when you boot the computer. You can also control one or both alarms using the computer's Setup Program as described in your *TravelMate 3000 Notebook Computer User's Manual*.

The DATES utility displays information similar to the following example when you type at the MS-DOS **C:\>** prompt

DATES

and press the **Enter** key. DATES displays the following informational screen.

DATES vTM3000.n.nn.n.nn
Copyright (c) 1990 Texas Instruments Incorporated

System Information:
        Processor: 80386
        Model ID: Notebook

System BIOS Information:
        Link date: NN/NN/90
        Checksum: nnnnnn
          Version: TRAVELMATE 3000
VGA DIOS Information:
          Name: Quadtel 90C20 Enhanced VGA DIOS
          Version: N.N.N

BatteryPro Information:
        BATTERY.PRO Version: N.NN
          Current Power Level: 2
          Maximum Power Level: 4

In addition to listing the version numbers for internal firmware, the DATES command is useful for determining the currently selected power savings level.

Note: The DATES utility requires the BATTERY.PRO device driver. If this device driver has been deleted from your CONFIG.SYS file, running the DATES utility displays the message: Invalid Hardware/Software Detected.

GETSTAT Utility

The GETSTAT program can be used in a batch file to test for the following.

❑   Presence of an optional external expansion unit (/E)

❑   Power source in use, external ac or internal battery pack (/B)

❑   Type of monitor in use, external or built-in LCD (/V)

GETSTAT returns an error code to the batch file for it to test.

GETSTAT Commands

To test for the presence of an optional external expansion
unit, use the command:

GETSTAT /E

If the expansion unit is connected to the TravelMate 3000, GETSTAT exits with an
ERRORLEVEL = - 1; if the expansion unit is not connected, GETSTAT exits with an
ERRORLEVEL = 0.

To determine the current power source in use, use the command:

GETSTAT /B

If the computer is currently powered by its internal battery pack, GETSTAT exits with
an ERRORLEVEL = - 1; if the computer is currently powered by the AC Adapter,
GETSTAT exits with an ERRORLEVEL = 0.

To test which video device is in current use, use the command:

GETSTAT /V

GETSTAT Utility

If the computer is displaying data on an external monitor, GETSTAT exits with an ERRORLEVEL = - 1; if the computer is using its built-in LCD, GETSTAT exits with an ERRORLEVEL = 0.

Sample GETSTAT File

The following sample shows a typical GETSTAT file you could create as a batch file named TEST.BAT.

if ERRORLEVEL -2 goto bad-machine getstat /e
if ERRORLEVEL -1 goto yes_exp echo no expansion station attached goto chk_batt
:Yes_exp
echo the expansion station is attached :chk_batt
getstat /b
if ERRORLEVEL -1 goto yes_batt echo the unit is currently powered **by** external power source goto chk_video
:yes_batt
echo the unit is currently powered by the battery :chk video
getstat /v
if ERRORLEVEL -1 goto yes_mon echo the video is currently on the LCD goto exit-all
:yes_mon
echo the video is currently on the external monitor goto exit_all
:bad-machine
echo detected invalid hardware :exit-all

MODSCRN Utility

The MODSCRN (modify screen state) utility permits you to switch the computer's display from its built-in LCD screen to a compatible external monitor. (The ALTVID command also switches the display from and to the LCD.) You also can use MODSCRN to turn the LCD backlight off and on.

To load the MODSCRN utility, at the MS-DOS **C:\>** prompt type

MODSCRN [/D /E /M /L /S]

and press the **Enter** key; where

/D disables the LCD backlight.

/E enables the LCD backlight.

/M switches the displayed image from the computer's LCD to an external monitor connected to the computer.

/L switches the displayed image from an external monitor to the computer's built-in LCD.

/S shows the current display state, similar to the following.

Display is currently on the LCD.
Display Backlight is ON.

RAMDRIVE.SYS Device Driver]

◁○ **Note:** When you turn off or warm start your computer, all data stored in RAM disks is lost.

The RAMDRIVE.SYS device driver enables your computer to use some of its memory as if it were a hard disk drive. Called a *RAM disk* (and sometimes a *virtual disk*), it is much faster than a hard disk because its data is always loaded into RAM. RAMDRIVE.SYS puts the RAM disks into the memory area above 1 MB.

◁○ **Note:** Using the RAMDRIVE.SYS device driver increases the size of MS-DOS resident in memory.

Installing RAMDRIVE.SYS

To install this device driver, add the following line to your CONFIG.SYS file:

DEVICE=RAMDRIVE.SYS [disksize] [sectorsize]
[entries] [/E] [/A]

RAMDRIVE.SYS Options

The following options and switches are available for use with the RAMDRIVE.sys device driver.

disksize specifies the disk size in KB. The default is 64 KB; the minimum is 16 KB.

sectorsize specifies the sector size in bytes. The default is 512 bytes: the following sizes are permitted: 128, 256, 512, and 1024 bytes.

entries specifies the number of root directory entries. The default is 64; the minimum is 4; the maximum is 1024. RAMDRIVE.SYS adjusts the *entries* value to the nearest sector boundary. That is, if you specify 25 when the sector size is 512 bytes, 25 is rounded up to 32 (the next multiple of 16; there are sixteen 32-byte directory entries in 512 bytes).

RAMDRIVE.SYS Device Driver

/e uses extended memory above I MB as a RAM disk. If you
use this switch, you cannot use the **/a** switch described below. This switch is
recommended.

/a uses expanded memory as a RAM disk. If you use this switch, you cannot use the **/e**
switch described above.

The SETCMOS utility enables you to save and restore, if necessary, the computer configuration data saved in a battery-powered CMOS RAM by the computer's Setup Program. This utility is useful for:

❑ Restoring configuration data if the CMOS battery is ever removed or disconnected

Note: The CMOS RAM battery is a small battery completely separate from the internal battery pack, which has no effect on the CMOS RAM.

❑ Creating custom configuration data files for each of your application programs; for example, if one program works best with extended memory and one works best with expanded memory, you can use SETCMOS to change configurations without having to use the computer's Setup Program each time you load the application

The SETCMOS utility saves the current configuration data to a file you name. The factory default file, FACTORY.CMS stored under the UTILS directory, is the file used when you press the **F8** (Reset Config) key at the Laptop Manager main menu.

When you change configuration data (for example, when you add options or change configuration for an application), be sure you save the data by pressing the **F7** (Save Config) key on the Laptop Manager main menu, or you can run the SETCMOS utility as described in this section.

SETCMOS Command

To view the SETCMOS command and options, at the MS-DOS **C:\>** prompt type

SETCMOS /?

and press the **Enter** key.

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SETCMOS Utility

The utility displays the following screen and returns to the MS-DOS prompt.

Usage: setcmos   [[/r] file /s file /n /v /h /?]
        /r file   Restore from file
        /s file   Save to file
        /n   No reboot on restore
        /V   Display version
        /h or /? This help message

Saves/restores CMOS RAM to/from a file.

Note: The /R switch is the default switch for the SETCMOS command.

Restoring Factory Default CMOS Data

To restore the factory default CMOS configuration data file,
at the MS-DOS **C:\>** prompt type

SETCMOS /R C:\UTILS\FACTORY.CMS

and press the **Enter** key.

The factory default configuration values are restored in the CMOS RAM and the
computer reboots itself The factory default file (FACTORY.CMS) is stored on the hard
disk under the UTILS directory and on the *BatteryPro & Productivity Software* floppy
furnished with your computer.

Saving Your CMOS Data

Once you have used the TravelMate 3000 Setup Program to configure your new computer for your operating environment and options, you should save the data stored in the CMOS RAM to your own custom file.

To save the current CMOS RAM data, at the MS-DOS **C:\>** prompt type

SETCMOS IS MYFILE.CMS

and press the **Enter** key.

You can type any filename you want instead of the MYFILE.CMS filename shown in the example. If you ever need to restore the computer to your configuration settings, type your filename to the SETCMOS /R command described previously.

Accessing the Utilities From Windows 3.0

If you plan to install Microsoft Windows, version 3.0 or later, on your TravelMate 3000 Notebook Computer's hard disk, and you want to be able to access the BatteryPro and other utilities from Windows, install and set up Windows as described in this appendix.

Your TravelMate 3000 is shipped from the factory with all utility programs described in this manual installed on the hard disk drive. The first section of this appendix describes how to install Windows on a new TravelMate 3000. The second section tells you how to install Windows on a TravelMate 3000 whose factory-installed files and directories may have been erased or modified.

Installing Windows in a New Computer

If your TravelMate 3000 is new and you have not modified or erased any files under the UTILS directory on the hard disk (drive C), install Microsoft Windows (version 3.0 or later) as follows.

1. Install Microsoft Windows on the TravelMate 3000 hard disk (drive C) as instructed in the Windows documentation.

Note: Remember to delete the EMM.SYS line from the computer's CONFIG.SYS file as instructed in the Windows documentation.

2. After Windows is installed, at the MS-DOS **C:\>** prompt type

WIN

and press the **Enter** key to load Windows.

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Accessing Utilities From Windows 3.0

3 At the Windows *Program Manager* menu, use the mouse to select *File*, then *New,* then *Program Group*, then *OK*.

Or you can press, in this order, the **Alt-F** keys, the **N** key, the **G** key, and the **Enter** key. Windows displays the *Description* prompt.

4. At the *Description* prompt type

TM3000 Utilities

and press the **Enter** key.

5. If your computer has the optional Internal Modem installed and you want to be able to access the modem related utilities from Windows, at the *Group File* prompt type

C:\UTILS\TM3000M.GRP

and press the **Enter** key. Or if you do not have the modem or do not care to access modem utilities from Windows, at the *Group File* prompt type

C:\UTILS\TM3000.GRP

and press the **Enter** key.

Installing Windows in a Computer With Modified Directories

If your computer is not new, you must ensure that the TravelMate 3000 utilities needed for Windows are installed under the UTILS directory on drive C (hard disk). The easiest way to do this is to run the INSTALL utility on the *BatteryPro & Productivity Software* floppy furnished with your TravelMate 3000.

1. Start the computer and then insert the *BatteryPro & Productivity Software* floppy into the floppy drive.

2. At the MS-DOS **A:\>** prompt type

INSTALL

and press the **Enter** key. The computer displays the *Install* utility main menu which prompts you to copy the system, modem, and WINDOWS files to the hard disk drive.

3. Press the Arrow keys to move the blinking highlight to the *Copy The WINDOWS Files* prompt and press the **Enter** key.

The *Install* utility then asks if you want the CONFIG.SYS and AUTOEXEC.BAT files changed to the factory default or stored as prototype files with the extension NEW.

4. If you have previously set up these two files for certain purposes, select the *Create NEW System Files* option and press the **Enter** key. If you want to restore the default files, select the *Update the System Files* option and press the **Enter** key.

The Install utility then installs the WINDOWS and UTILS files on your computer's hard disk and displays several additional prompts for you to answer to complete the installation.

You should now be able to load Microsoft Windows 3.0 and access the TravelMate 3000 utilities from displayed icons.

Using Windows 3.0 With an External Monitor

Use Windows 3.0 with an external monitor connected to your TravelMate 3000 as follows.

1. Turn off the TravelMate 3000 and the external monitor and connect the units with the appropriate cable.

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Accessing Utilities From Windows 3.0

2. Turn on the two units, and at the MS-DOS **C:\\>** prompt type

ALTVID

and press the **Enter** key. The display switches to the external monitor.

3. Load Windows 3.0 as described previously in this appendix.

You also can use the ALTVID command from within Windows to switch the display to the external monitor. But before you load Windows, at the TravelMate 3000 Setup Program set the *LCD Power* item to *Low.* Note that this method is not recommended because it results in lower resolution images when using the computer's built-in LCD screen.

See your *TravelMate 3000 Notebook Computer User's Manual* for more information on the Setup Program, external monitors, and the ALTVID command.

You can custom design your own Help displays to show information for your own programs or your commercial application programs. You also can add subjects and related descriptions to the HELP.DAT and DOSHELP.DAT files created at the factory.

You need an ASCII word processor or editor to create and edit the HELP.DAT files or an editor that creates or "exports" files in ASCII format.

Rules for Creating Help Files

Use the following rules to create your own help files.

❑ **::TIHELP -** must always be the first line in the file, with the first colon in column 0.

❑ **:T -** precedes the main title for the help display.

❑ **:C X BF -** precedes the colors used for the help menus, where **X** selects one of the following menus to assign a color:

1 = main menu
2 = subject name box
3 = subject description box
4 = error message menu
5 = help menu
6 = print menu

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Creating Help Displays

and **BF** selects the menu color, using **B** for background color and **F** for foreground color in hexadecimal. Colors are defined as follows:

> 0 = black
> 1 = blue
> 2 = green
> 3 = cyan
> 4 = red
> 5 = magenta
> 6 = brown
> 7 = light gray (white)
> 8 = dark gray
> 9 = light blue
> a = light green
> b = light cyan
> c = light red
> d = light magenta
> e = yellow
> f = bright white

For example, the string: **C 1 97** sets the main menu (1) background to light blue (9h) and the foreground to light gray (7h). You must start each menu color selection on a new line.

❑　　　:**P** - precedes the subject name that appears in the left-hand subject name box. You can use up to 13 characters. Data you enter on the lines below the : **P** line make up the description that appears in the righthand subject description box. You can enter any number of data lines for the description box. The description box terminates with a : (colon) in column 0 to start another command or an EOF character.

Creating Help Displays

❑   **; -** (semicolon) in column 0 precedes a comment line, which is ignored by the program. You can insert any number of comment lines for your own information; comment lines are not displayed in the Help screens. You also can use the; (semicolon) character anywhere on a menu color line after the **:C X Y** characters when preceded by a space character; for example,

: C 1 0f ; this is a sample color comment line.

Column length of the subject name box is 13 characters maximum; the description box is 52 characters maximum.

Sample Help File

The following figure shows a sample help subject entry, with comment lines explaining the command lines.

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Creating Help Displays

```
::TIHELP
;-------------------------------------------------
;the line above must be the first line in the file
;------------------------------------------------------------------------
;the following line is the Help menu main title
;------------------------------------------------------------------------
:T My Help Display, Version 1.0
;------------------------------------------------------------------------
;the following three lines set the color, for the main menu
;and the subject and description boxes
;------------------------------------------------------------------------
:C 1 Of  ;        sets main menu to bright white on black
:C 2 f0  ;        sets subject box to black on bright white
:C 3 87  ;        sets description box to dk gray on lt gray
;------------------------------------------------------------------------
;you can insert a character counter like the following to
; help you keep lines for the description box to the 52
;character maximum
;------------------------------------------------------------------------
;          10        20        30        40        50
;12345678901234567890123456789012345678901234567890112
-----------------------------------------------------
;the following lines list the subject box entry ; and the
;description box entry; the subject name is limited to 13
; characters and the description box is 52 characters
; maximum
-----------------------------------------------------
:PSubject Name
```

The words "Subject Name" will appear in the left-hand subject name box on the displayed Help menu and this explanation, whose first line is indented three characters will appear in the right-hand subject description box.

If more than one page is required to complete the description, the program will automatically adjust for additional pages.

```
;------------------------------------------------------------------------
;the following lines are additional entries in the Help file
;------------------------------------------------------------------------
:PEntry No. 2
        Entry number 2 will display next on the Help
display.
:PEntry No. 3
        Entry number 3 will display next on the Help
```

Naming Your Help File

You can give your help display data file any name and extension you want-*except* HELP.DAT and DOSHELP.DAT, which are already in use under the UTILS directory. For example, you could name your help display data file MYFILE.HLP. Then when you want to load your help display, at the MS-DOS **C:\>** prompt type

HELP MYFILE.HLP

and press the **Enter** key.

If you type only HELP , without specifying a data file, the program searches first for the default data file: HELP.DAT in the current directory; then it searches through all directories specified in the PATH environment variable defined in your AUTOEXEC.BAT file. The program uses the same search technique if you type only a filename. If you type a filename preceded by a \ (backslash), which creates a pathname, the program searches only for the file specified by the pathname.

Adding Subjects to Existing Help Displays

You can add subjects and descriptions to the existing HELP.DAT and DOSHELP.DAT files, stored under the UTILS directory on the hard disk (drive C). Use your word processor or file editor to insert new subjects and descriptions anywhere in the file, following the rules outlined previously in this appendix.

Note: Be sure to save the file back to disk in ASCII format, not your word processor's particular format.

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