LM Manual

CHAPTER 1: INTRODUCING THE NOTEBOOK

Your new Notebook features innovative advances in portable computing technology. It combines state-of-the-art ergonomics with sophisticated architecture to provide you with a personal computer that is compact, powerful, and easy to use.

The Notebook's modular design provides maximum expandability without compromising portability. The hi-h performance CPU and IDE hard drive provide you with the extra processing power needed to handle complex graphics and large sound files. Two PCMCIA slots give you the ability to use standard PCMCIA cards, such as a LAN adapter or memory cards. The Notebook has an FDD module in the module bay that can be replaced with a CD-ROM module giving you access to a greater variety of graphics and multimedia software.

This User's Guide describes all features of the Notebook in an easy-to-read yet thorough manner. The primary goals of this chapter are to identify the Notebook's external components and to provide a quick reference of the Notebook functions for experienced computer users.

Features and Controls

This section provides an overview of the Notebook's features. For more detailed information see the specification section in Appendix B. Your Notebook includes the following features:

CPU

The microprocessor (CPU) is the heart of the computer. It performs all the computing functions and orchestrates the actions of the system. This Notebook was designed with a Pentium or Pentium equivalent CPU.

CPU upgrades are possible. Changing a Pentium CPU requires much skill and knowledge. If you are not absolutely sure that you have the capability to change a Pentium CPU by yourself, let your Notebook dealer do it for you. Removing the CPU in an improper way may damage the motherboard bringing you costly repairs.

This architecture of your Notebook supports the Intel P54 LM 75/ 90/ 100; the Intel P54CSLM 120/ 133; the Intel P55C 150 or the Cyrix Mi. The Pentium family CPU operates at 3.3 volts or less, and therefore consume less energy and generate less heat than 5-volt CPUS.

1.44 MB Floppy Drive

This disk drive can use either 72OKB double density or 1.44MB high density 3.5inch floppy diskettes. You can store your data or programs on them and use them from the floppy drive. Floppy diskettes are useful for making backups of your program diskettes and data files.

The Notebook comes with a FDD (Floppy Disk Drive) module which can be removed from the unit and replaced with another module. For information about installing and removing the FDD, see the section in Chapter 6 labeled *Installing and Removing Modules.*

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Hard Drive

The Notebook comes with a 2.5" hard disk installed. Like the FDD, the hard drive is also of modular design. It can be easily removed and replaced with a second hard drive for the purpose of data backup or expansion. The hard drive in your Notebook will be either 340MB, 540MB, 810 MB or I GB (gigabyte). Consult your dealer to find out what size hard drive your Notebook has.

LCD VGA Display

Your Notebook's VGA display is one of the following four types of LCD displays:

    11.3" Color DSTN LCD with an 800 x 600 SVGA (Super VGA) resolution back-light display
    11.3" Color TFT LCD with an 800 x 600 SVGA (Super VGA) resolution back-light display
    12.1 " Color DSTN LCD with an 800x600 SVGA resolution back-light display
    12.1 " Color TFT LCD with an 800x600 SVGA resolution back-light display

VGA Graphics Accelerator

This Notebook is equipped with a Neo Magic NM2070 VGA controller chip featuring:

    Supports PCI Local Bus

    Supports simultaneous display

    The Integrated 128-bit wide, 7Mbits Display Memory

The Integrated Programmable Linear Address feature accelerates GUI performance

    Supports NON-interlaced CRT monitors with resolutions of up to 1024x768 at 256 colors.

    Supports Advanced Power Management features which minimize power consumption during:

            Normal operation

            Standby (Sleep) mode

            Panel-off Power-saving mode

Graphics Accelerator for Windows Applications 3.3V/5V panel Interface support Hi-color display capabilities (for TFT LCD panel only): 8 bits/ pixel up to 640 x 480 resolution 8 bits/ pixel with a resolution of up to 1024 x 768

87/88-key Enhanced Keyboard

The Notebook's keyboard uses a standard QWERTY layout with the addition of special function keys. It is available in either 87 or 88-key keyboard that will emulate a full-size desktop 101/102-key keyboard. The keyboard features an embedded numeric keypad for number intensive data entry, with independent PgDn/ PgUp/ Home/ and End keys.

Windows 95 Enhanced Keyboard

Your keyboard supports Windows 95 by incorporating the two Windows specific keys. With the two Windows 95 keys you will be able to access and take advantage of many of the time-saving feature of Windows 95 software.

Touchpad

The touchpad is a pressure-sensitive pointing device which allows you to move the cursor around the screen and make selections just as one would with a conventional mouse. The benefit a touchpad has over a mouse is that you do not have to remove your hands from the touch-type position to access the touchpad. The touchpad is easily accessible by your left or right thumb. Simply remove your right or left thumb from the spacebar and reach down to activate the touchpad.

A unique function called *double-tapping* allows the user to make selections within a software program or execute software applications, again, without having to remove the hands from the touch-type position.

Please see the section in Chapter 3 labeled *Touchpad* for more information on the operation of the touchpad.

Connectors

The Notebook has a number of connector (input/Output) ports for attaching peripherals to the computer, including the following:

A 6-pin connector for a full-size keyboard or a PS/2 mouse

Two audio jacks used for External Mic (Mic In) and Speaker Out

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A 15-pin CRT (monitor) port

A standard 9-pin serial port to which you can attach a variety of serial devices, such as a mouse or modem.

A 25-pin parallel port which is most commonly used to connect a printer or Pocket LAN to the computer. The parallel port supports both EPP and ECP capabilities.

A 240-pin connector for the Notebook's Docking Station, in turn, supporting 32bits PCI bus, a

PS/2 port, an AT-keyboard, a primary IDE, IS I P, CRT and Audio ports.

Two PCMCIA expansion sockets provide an interface for 2 Type 11 cards, or I Type III card. PC cards accommodate a number of expansion options, including memory cards, modems, hard disks, and network adapters.

One 3-pin connector provides for an AC Adapter powerjack .

One built-in IRDA SIR (Serial Infrared) transmitter/receiver for wireless communications

One built-in microphone

Two built-in speakers

14.4 Fax Modem Card (optional)

PCMCIA Socket

PCMCIA R2.0 host adapter supports one type III PCMCIA card or 2 type 11 PCMCIA cards. PCMCIA socket accommodates SRAM, OTPROM, FLASHROM and Mask ROM memory cards up to 64MB, and Modem/ LAN cards.

Battery and AC Power System

To power the Notebook, you can use an AC Adapter or the rechargeable battery module pack. The system will automatically recharge the battery pack in the Notebook by using the AC Adapter. For information on recharging the battery while simultaneously using the Notebook, see the section in this chapter on installation and initial setup. By using the power management features described in Chapter 5, the Notebook can operate on battery power for approximately 3 hours. The battery pack takes approximately 3 hours to recharge when the computer is.tumed off. It takes 4 hours to recharge when the computer is in use. For extended battery-powered operation, additional battery modules may be purchased.

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Upgradable Memory

The Notebook comes with on-board 8MB system memory that is upgradable to a total of 16MB, 24MB and 40MB by installing one or two 4MB, 8MB, 16MB additional memory modules. Refer to the section in Chapter 6 labeled *System Memory Expansion and Installing Memory Cards* for detailed infon-nation on upgrading system memory. After reviewing the appropriate sections, if you are not completely confident that you have the know-how to install memory by yourself, definitely consult your Notebook technician.

Built-in Level 2 Cache RAM

The Notebook provides a 256KB L2 Cache RAM card that will enhance the system performance, especially in the Windows environment.

Keyboard Controls

The Notebook provides a host of hot key features that are a permanent part of the computer's operation. Some affect the LCD video display, while others control the sound volume. A complete list of the Notebook's hot key functions is provided in Chapter 3.

Power Management

> The Notebook features sophisticated power management built into the BIOS Setup program. These features are designed to conserve power and extend the life of the battery between charges.

SIR Port

> The Notebook features an SIR Port that allows wireless, serial communication between the Notebook and other SIR equipped devices such as a printer or another computer. The SIR Port allows for both sending and receiving of data. The Port is set on a hinge allowing for freedom of movement from O' to 180'.

Audio Features

> The Notebook's audio features include a sophisticated on-board 16-bit stereo FM sound generator, two integrated speakers, internal microphone, two input/ output

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> stereo jacks, and a utility diskette that contains several Audio-Drive application programs that run under the Windows environment.

Optional Devices

There are several optional products you can purchase to further enhance the utility of your Notebook computer.

    Removable IDE HDD
    FDD Drive Module
    CD-ROM Module
    Factory Option 14.4 Fax Modem Card
    External FDD cable
    An I/0 Replicator
    A Docking Station
    Car Adapter
    External Charger
    Factory Option MPEG-1 card
    Extra memory modules (4, 8, 16MB DIMM)
    Secondary Battery Module

Unpacking & Checking the Equipment

Before unpacking the Notebook, prepare a clean, stable surface to put the contents of your Notebook's shipping container on. Altogether, you should find the following items in the Notebook package:

The Notebook Computer (with one battery pack already installed)

Installed FDD Module

An AC Adapter

A Power Cord

A Carrying Bag (optional)

Support Diskettes

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Remove all the items from the container. If anything is missing or broken inforrn your dealer immediately. You should save the packaging; if you ever need to ship your Notebook or send it in for service, the shipping container will definitely be useful.

Identifying Parts of the Notebook

The illustrations that follow identify the various features and external components of the Notebook computer. Familiarizing yourself with these terms will help you as you read further in the following sections.

Right Front View (Panel Closed)
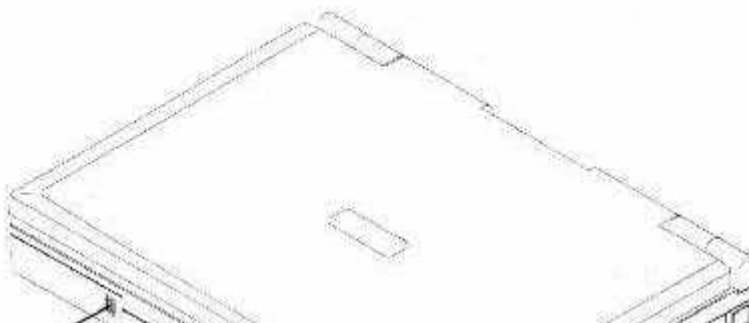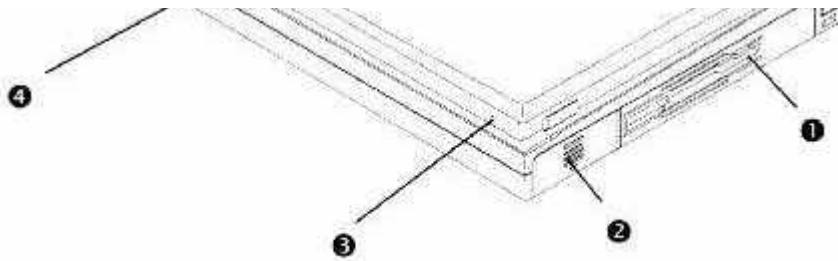
Figure 1-1: Right Front View *with Display Panel Closed*

[LM 1-8]

Modem Port

Modem cards are optional pieces of equipment. If you purchased a Notebook with an installed modem card, plug the phone line (UTP cable) into this port, install the communications software, and you will be able to send or receive data transmissions across telecommunication lines. For details on having a modem card installed, please contact your Notebook dealer.

2.Floppy Disk Drive Module

Your Notebook comes equipped with a factory-installed floppy disk drive module. Insert 3.5-inch floppy diskettes in this drive. Note that the eject button only pops out when a diskette is inserted in the drive. The floppy disk drive module can be removed and replaced with a different module. See the section in Chapter 6 on optional equipment for a detailed description of installing and removing the FDD and optional modules.

*3.*Removable Battery Module

Your Notebook comes equipped with a factory-installed battery pack module. After the battery runs down, the module can be removed and replaced with a charged battery. Additional battery packs are optional pieces of equipment.

4.LCD Panel Catch Release

To open the notebook, slide the two latches located on the sides of the Notebook towards you. This will release the LCD panel catch. Now raise the panel to its open position as shown in *Figure 1-4.* Note that the notebook's LCD panel can be customized to an angle of O' to 180'. Experiment to achieve an angle where by there is no glare emitting from the display.
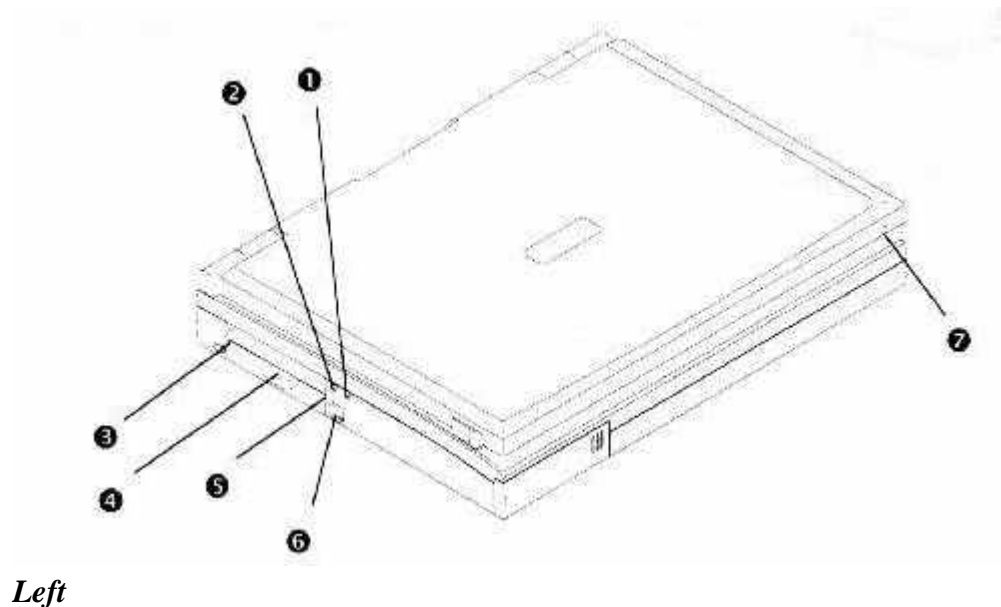
*5.*Removable Hard Drive Module

The HDD module can be easily removed and replaced with a second hard drive for the purpose of data backup or expansion. Do not attempt to remove the HDD while the Notebook is On.

[LM 1-9]

Left Front View (Panel Closed)

Figure 1-2: Left

Audio Speaker-Out Connector

This stereo jack is used to connect external speakers or headphones. Please refer to Chapter 3 for information on using the Audio hot key combination.

2.External Mic Connector

This stereo jack is used to connect an external microphone.

3.PCMCIA Upper Socket Eject Button

Push to release a PCMCIA Type I or Type II card from the upper slot.

4.PCMCIA sockets

Insert PCMCIA Type 1, Type 11 or Type III cards into this socket.

5.PCMCIA Lower Socket Eject Button

Push to release a PCMCIA Type I or Type 11 from the lower socket or releases a Type III card from the socket.

6.AC Power Jack

Connect the AC Adapter power cord to this jack.

7.Power LED Indicator

When the system is AC adapter powered, the LED indicator will light green to indicate charging state. If the indicator is blinking fast, the system is not in charging. If the LED is blinking slow, it indicates that the system is battery powered and in suspend. In the LED off state, the system may either be on or off with battery powered only.

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The Audio jacks **are** *three-terminal stereo jacks but used as* **two terminal** *mono jack.* **They** *are compatible* **with** *two-terminal mono plugs.*

Rear View

The rear side of the Notebook contains an SIR (serial infrared) port, a serial

(COM) port, a Parallel (LPTI) port, a VGA port, an external keyboard port, a PS/2 mouse port, and a 240-pin 1/0 Docking connector.

The rear side panel is concealed by a protective port cover. The 240-pin Docking connector port door slides open so that it alone is visible. To reveal the remainder of the ports, the main protective cover must be opened. There are two indented grooves on the port cover. One is on the upper left of the port cover and the other is on the upper right. Gently pull these tabs down to reveal the remaining connector ports.

Starting from left to eight, the rear-side ports are introduced below. Please refer to *Figure 1-3* for assistance in locating these ports.

1.Serial Infrared (SIR) Port

The SIR Module allows wireless communication (transmission and receiving) between the Notebook and another computer or between the Notebook and another SIR equipped device, such as a printer. The Port is set on a hinge allowing for freedom of movement from O' to 180'. With the LCD panel in the open position, the SIR module supports only two angular positions: 01 or 1800.

2.Serial (COM) Port

This port is used to connect RS-232 serial devices to the Notebook. Three types of serial devices are mice, serial printers, and modems.

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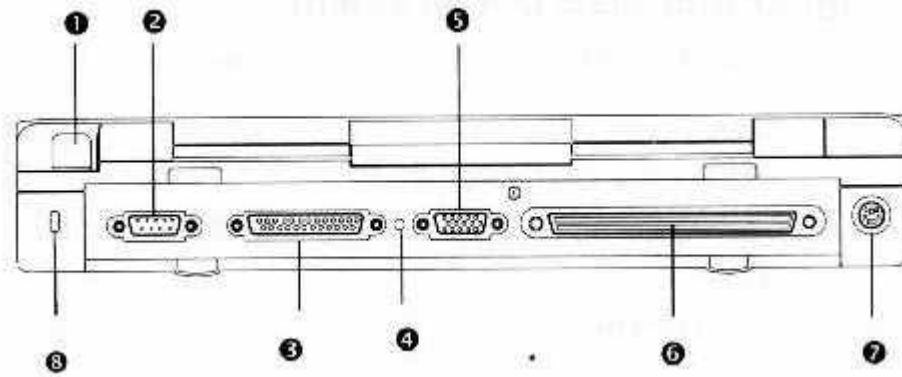
Figure 1-3: *Rear View of notebook*

3.Parallel (LPTI) Port This port is normally used to connect a printer to the Notebook.

4.Reset Button Pressing this button will reboot the system. All unsaved data will be lost.

5.VGA Display Port

This port is used to connect an external monitor (CRT) to the Notebook.

6.Docking Station Connector

This port is for connecting the Notebook to its proprietary Docking Station or I/O Replicator.

7.**External Keyboard or PS/2 Mouse Port**

This port is for connecting either an external keyboard or a PS/2 mouse.

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Right Front View (Panel Open)

Open the Notebook by first sliding the latches located on either side of the Notebook's cover towards you. Please refer to *Figure 1-1* if you are having trouble locating the LCD panel release latches. Raise the cover to its open position. *Figure 1-4* shows the Notebook in the open position with the external parts labeled. As mentioned earlier, the cover can be adjusted to an angle of O' to 180'. Adjust the LCD cover to an angle whereby there is no glare emitting from the screen.

1.**LCD Screen**

The screen is a color 11.3" or 12.1" DSTN or color TFT LCD depending on the Notebook which you purchased.

2.System Status Window

The system status window informs you of the Notebook's current operating status at a glance. The different display icons that may appear in this window

are:the Caps Lock, Numlock, Scroll Lock, Keypad Lock, FDD activity, PCMCIA activity, CD-ROM and HDD activity, AC power, Main battery or Secondary battery icon and the Battery power status icon.
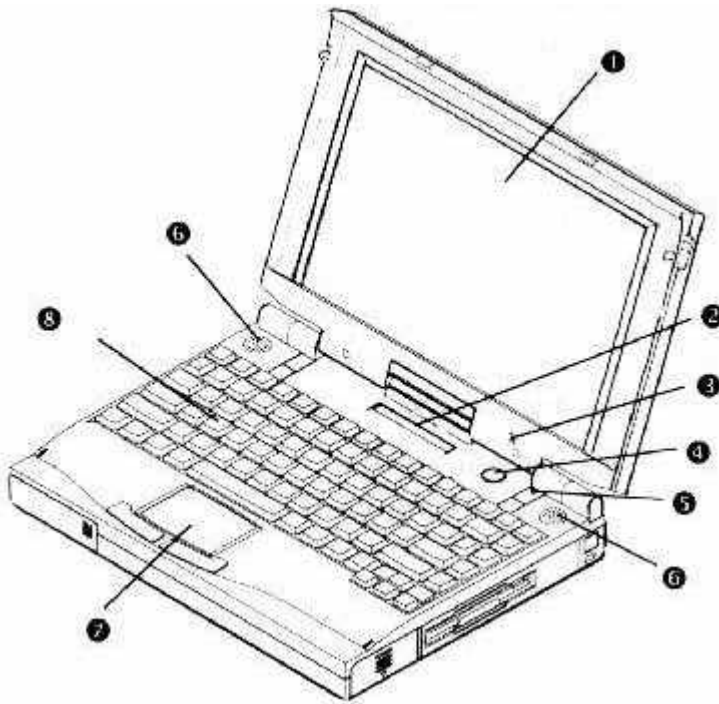
Figure 1-4: Right Front View with Display Panel Open

[LM 1-13]

*3.***Built-In Microphone**

The microphone can be used to record music, voice, and sound files.

4.On/Off **Button**

Press this button to turn the computer on or off.

5.Suspend/Resume Lid Switch

There are two ways to enter the system into suspend mode. One is to automatically enter the suspend mode. The system will enter the suspend mode based upon the settings made in the Basic Input Output System (BIOS) program. Although it sounds intimidating, it is a simple program to use. It is covered in detail in *Chapter 2*.

In the second method, the Suspend/Resume is activated by using the cover switch. If the Notebook is ON and the lid is closed, the Notebook will automatically enter the suspend mode. Opening the cover will *resume the* system to full power operation.

For more information on the suspend mode, please see Chapter 5.

6.Internal Stereo Speakers

The Notebook provides three audio-output choices: wearing headphones connected to the audio-out port for private listening, connecting external stereo speakers to the audio-out port for high quality sound, or for convenience, using the internal stereo speakers.

7.Touchpad

The touchpad is a pressure sensitive pointing device that provides all the features of a mouse. Although its operation differs from a mouse, its function is quite the same; to move the cursor around the screen. Please refer to the sections in Chapter 3 labeled *Using the Touchpad* for more information.

8. Keyboard

Your keyboard is either an 87-key US version or an 88-key international version depending on the Notebook which you purchased.

[LM 1-14]

Installation and Initial Setup

If you are unfamiliar with computers, this section guides you through turning on your Notebook for the first time. This section also explains what you need to do after turning on your Notebook. Experienced computer user's may need only read through this section while using the rest of the manual merely as a reference.

Connecting the AC Power Adapter

There are two possible ways of powering the Notebook. One is by internal battery module and the second is by connecting the Notebook's AC Adapter. This chapter will focus on the AC connection. *Figure 1-6* illustrates this connection. For information on using battery power, please refer to *Chapter 3*.
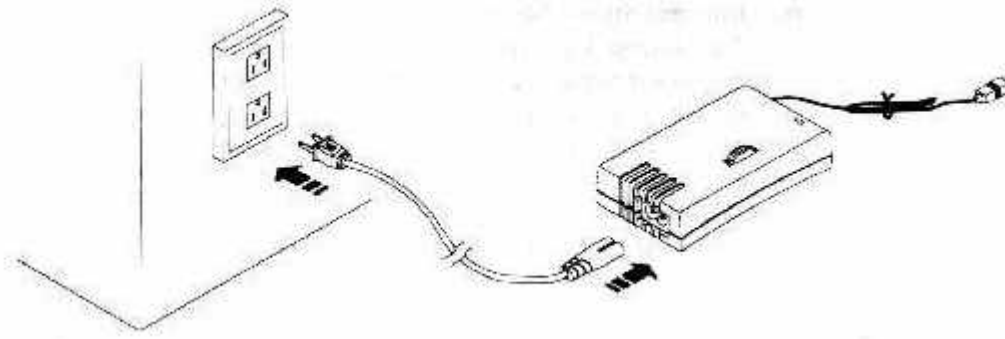
Figure1-5: ConnectingthePowerCordtotheACAdapter

[LM 1-15]

An AC Connection

To power the Notebook by using the external AC Adapter, please refer to *Figure 1-5, Figure 1-6* and the following directions:

I .Insert the end of the AC Adapter output cable into the Notebook's AC port. Align the pins in the port with the holes in the connector and insert the cable into the port. *Figure 1-6* illustrates this connection. Do not force a connection.

2.Connect the power cable to the port on the AC Adapter module. This port is shaped like a figure eight with two pins protruding from it. Align the pins in the port with the holes in the connector and insert the cable into the port. Do not attempt to force a connection.

3.The best power source which you can connect any computer device to is a UPS (uninterruptable power supply). Your Notebook dealer will be able to provide you specifics as far as the price and performance of different brands of UPS. If you do not own a UPS and have no desire to purchase one, your next best power source is an extension cord which has its own built-in electrical surge protector. Lacking this kind of extension cord, plug the AC Adapter directly into a grounded electrical outlet.

4.Plug the Notebook into its power source and press the ON button. If the Notebook does not power up, check the AC Adapter to the Notebook connections. If the Notebook still does not power up, please refer to *Appendix A, Troubleshooting.*

5.Push & Hold the ON-OFF Button for more than I second to turn off the

computer.

[LM 1-16]
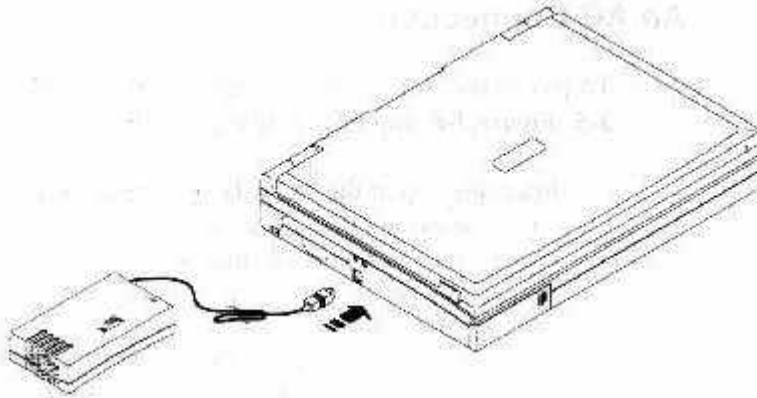
Figure1-6: ConnectingtheACAdaptertotheNotebook

You can optionally purchase a Car Adapter module which plugs into car's cigarette lighter.

If you travel to an area with a different electric power standard, check to make sure whether that voltage system is compatible to your Notebook's power requirements before plugging it into an AC power source. You can use an adapter plug which interfaces between your system cables and the electrical wall outlet of the foreign country you are visiting. If you are unsure about this, please consult your support technician.

Your Notebook is equipped with one rechargeable battery pack which has already been installed. Please refer to the Power Management section of Chapter 5 for further coverage of the rechargeable battery and how to optimize its use.

The Power On Self Test (POST)

When you turn on the computer, it will first run through a series of softwarecontrolled diagnostic tests called the Power On Self Test (POST). The software that controls the POST is installed as a permanent part of the computer's architecture. The POST includes. a record of the computer's hardware which is used to make a diagnostic check of the system. This record is created by using the BIOS Setup Program.. If the POST discovers a difference between the record and the existing hardware, it will display a message on the screen prompting you to

[LM 1-17]

correct the conflict by running the BIOS Setup program. Refer to Chapter 2 for instructions on how to run the BIOS Setup program.

In most cases the record should be correct when you receive the computer. If so,

the POST will finish and the computer will look for a Disk Operating System to load into memory. The self test will run every time you turn on the computer. When the test is finished, you should get a message saying that there is a nonsystem disk or disk error. This indicates that the hard disk is ready to be prepared for use with the operating system you intend to use. After you prepare the hard disk for use, you should not see this message again unless you try to start the computer with a non-system floppy disk inserted in the floppy drive.

Installing a Disk Operating System

When starting the computer for the first time, please be aware that you must have a Disk Operating System (DOS) program installed on the hard drive. You probably have a DOS program already installed on your Notebook. If your dealer did not install DOS for you, please consult your Disk Operating Software manuals for instructions on how to install DOS onto your hard disk drive.

Preparing the Notebook for Transport

To prepare the computer for transport, you should first disconnect all peripherals. Make sure the computer is turned off before you do this. After disconnecting all peripherals, close the rear port cover to protect the connectors. The Notebook's hard disk head is self-parking. This means that the Notebook can be directly turned off from the DOS prompt. Close the LCD panel and check that it is latched securely to the computer. Make sure the floppy drive does not contain a diskette. When a diskette is inserted in the floppy drive the eject button pops out. If you attempt to transport the Notebook with a diskette in the drive, you risk damaging the eject button.

The computer has an optional soft carrying case. It will keep out dirt and dust and protect your Notebook's casing from getting scratched or cracked.

If you intend to use battery power, be sure to fully charge the battery pack and any spares. Remember the Adapter charges the battery pack as long as it is plugged into the computer and an AC power source.

This concludes Chapter 1. The next chapter covers the BIOS Setup Program.

CHAPTER 2: THE BIOS SETUP PROGRAM

Introduction

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor the operation of your Notebook to your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in nonvolatile battery backed-up CMOS RAM which saves this information even when the power is turned off. V,/hen the system is turned back on, the system is configured with the values found in CMOS. Using easy-to-use menus, you can configure such items as:

Hard drives, diskette drives and peripherals

Video display options
Password protection from unauthorized use
Power Management Features

The settings made in the Setup program intimately affect how the Notebook performs. It is important, therefore, first to try to understand all the Setup's options, and second, to make settings appropriate for the way you use the

[LM 2-1]

Notebook. This chapter will guide you through the Setup program by providing clear explanations for all Setup options.

If you wish to install various external devices, like a printer or an external monitor, you may need to access the BIOS Setup Program to let the computer "know" you have attached a printer, or any other device. A standard configuration has already been set in the Setup Program by the factory technicians, so you will very likely have little to worry about for now. However, as mentioned earlier, eventually you may want to customize your system to suit your own performance needs. It is recommended that you read this chapter and become familiar with what adjustments can be made in the BIOS.

The next section discusses how to move around in the Setup program, as well as how to specify and save your new settings. A brief discussion of the optional settings among the different submenus follows.

Navigating through the BIOS Setup Program

The Setup program has been designed to make it as easy to use as possible. It is a menu driven program, which means you can scroll through the various directories

and make your selections among the various predetermined choices. If you accidentally make a setting and don't know which one to switch back to, use the BIOS hot keys to return to the previous value. The hot keys are discussed in more detail later in this chapter.

When turning on the Notebook for the first time you may get a message prompting you to run the BIOS Setup program. A warning message may appear on the screen if the hardware configuration is changed or the POST fails. This message will inform you of any errors or invalid settings and prompt you to run the Setup program to correct the problem.

Even if you are not prompted by a message instructing you to use the Setup program, at some time in the future you may want to change the configuration of your computer. For example, you may want to connect a peripheral (like a printer), make changes to the power management settings or for security purposes, enable the Notebook's password function. It will then be necessary to reconfigure your system using the Setup program so that the computer can recognize these changes.

Below lists a few examples of reasons why you may want or need to run the BIOS setup program.

[LM 2-2]

You have set up the computer for the **first** time and you got a message stating that you should run the BIOS Setup program

You added or removed memory (RAM)

You want to redefine the communication ports to prevent any conflicts
You want to make changes to the Power Management configuration
You want to change the password or make other changes to the security setup

The above are only a few examples and by no means a complete list.

Accessing the BIOS Setup Program

To access the BIOS Setup program, press the F2 key after the Notebook has run through its POST.

The Menu Bar

The top of the screen has a menu bar with the following selections

Main;Use this menu to make changes to the basic system configuration.

*Advanced*Use this menu to enable and make changes to the advanced features available on your system.

*Security*Use this menu to set Primary, Admin., Boot and Resume passwords.

*Power*Use this menu to configure and enable Power Management features.

*Exit*Use this menu to specify how to exit the Setup program.

To move between menu bar items, use the arrow keys until the desired item is highlight. Then press <Enter>. For example, if you want to move from the Main menu to the Advanced menu, press the right arrow key (->) once. The Advanced menu item should now be highlighted. Pressing <Enter> will open this screen.

[LM 2-3]

The Legend Bar

At the bottom of the Setup screen you will notice a legend bar. The keys in the legend bar allow you to navigate through the various individual setup menus. The following table lists the keys found in the legend bar with their corresponding alternates and functions.

Launching Submenus

Notice that pointer symbol appears next to selected **fields** in the menu screens. The **pointer** resembles a triangle on its side. This symbol indicates that a submenu can be launched from this field. A submenu contains additional options for a field parameter. To call up a submenu, simply move the highlighted cell the desired **field** and press the <Enter> key. The submenu will then immediately appear. Use the legend keys to enter values and move from field to field within a submenu just as you would within a menu.

For step by step instructions on how to open a submenu, please refer to the following instructions.

1. You should be in the BIOS setup program now. If not, then enter the BIOS by pressing the F2 key after the Notebook has completed its POST. For information on POST, please see *Chapter 1*.

2.Use the arrow keys to move the selection cell until it highlights the Advanced menu.

3. The **first** field in the Advanced menu is the Integrated Peripherals field. Notice the triangle-shaped symbol to the left of the Integrated Peripherals field. It indicates that this field has a submenu. Pressing the <Enter> key at this point will open this field's sub menu.

If you are a first time user, or are not familiar with BIOS setup programs, it is

highly recommended that you take a few minutes to familiarize yourself with each of the legend keys

and their corresponding functions. Practice navigating through the various menus and submenus. If you accidentally make unwanted changes to the current configuration pressing the function key F9 will return the activated menu to its factory set values.

Note that in the right side of each of the BIOS screens, there is a section labeled *Item Specific Help.* While moving around through the Setup program, note that explanations for the currently highlighted field appear in the *Item Specific Help* window.

[LM 2-5]

General Help

> In addition to the Item Specific Help window, the BIOS setup program also provides a General Help screen. This screen can be called up from any menu by simply pressing the function key, Fl or the [Alt + H] combination. The General Help screen lists the legend keys with their corresponding alternates and functions.

> When a scroll bar appears to the right of a help window, this indicates that there is more information to be displayed that will not fit in the window. Use the PgUp and PgDn keys or the up and down arrow keys (T @)to scroll through the entire help document. Press Home to display the first page, press End to go to the last page. To exit the help window, press the <Enter> or the Esc key.

> Saving Changes and Exiting the Setup Program

> Refer to the Exit Menu section of this chapter for detailed information on saving changes and exiting the setup program.

The Main Menu

When the Setup program is accessed, the following screen appears

```
              PhoenixBIOS Setup - Copyright 1985-95 Phoenix Technologies Ltd.
      Main       Advanced      Security      Power      Exit
   ┌─────────────────────────────────────────────┬──────────────────────────┐
   │                                             │    Item Specific Help    │
   │  Date                   [1/02/1988]         │                          │
   │  Time                   [17:18:40]          │   <Tab>, <Shift-Tab>, or │
   │  Internal Hard Drive:    (C: 814 MB)        │   <Enter> selects field. │
   │  Boot sequence:         [Diskette First]    │                          │
   │                                             │                          │
   │  Diskette A:            Not Install         │                          │
   │                                             │                          │
   │  Total Memory:            8 MB              │                          │
   │  Video Memory:          896 KB              │                          │
   │                                             │                          │
   │                                             │                          │
   │                                             │                          │
   │                                             │                          │
   │                                             │                          │
   │                                             │                          │
   └─────────────────────────────────────────────┴──────────────────────────┘
      F1   Help    ↑↓ Select Item    -/+   Change Values      F9 Setup Defaults
      ESC  Exit    ←→ Select Menu    Enter Select ► Sub-Menu  F10 Previous Values
```

Enter the Main Menu of the BIOS setup program to make changes to the Notebook's basic system configuration. Each of the fields displayed in this menu are covered below in detail.

DATE

Sets your system to the date that you specify (usually the current date). The format is month, day, year. Type in the appropriate infon-nation. Use the tab key to move between the month, day, and year fields.

TIME

Sets your system to the time that you specify (usually the current time). The format is hour, minute, and second. Insert the appropriate information. Use the tab key to move between the hour, minute, and second fields.

INTERNAL HARD DRIVE

The number value in this field indicates the size of your Notebook's Hard Drive. The hard drive in your Notebook will be either 3 1 OMB, 5 1 OMB, 8 1 OMB or I GB (gigabyte).

BOOT SEQUENCE

This field allows you to set the booting sequence of the Notebook. There are two possible settings:

Diskette First

Hard Disk Only

When *Diskette First:* is specified, the system will attempt to boot from drive A first. If drive A is empty or a non-system diskette is present in the floppy drive, the system will boot from the C drive.

When *Hard Disk Only* is specified, the system will attempt to boot from drive C

only.

The default value for **this field** *is:*

DISKETTE A

Diskette First

This field is a display only item. This field was factory-set with a default of *Internal FDD*. The system will automatically detect the existence of an FDD module. Even if no FDD module is installed, the BIOS will still set Diskette A as installed. During system bootup, the summary screen will indicate whether or not floppy drives are installed.

[LM 2-7]

TOTAL MEMORY

This field displays the amount of conventional memory detected by the system during bootup. You do not need to make changes to this field. This is a display only field.

EXTENDED MEMORY

This field displays the amount of extended memory detected by the system during bootup. You do not need to make changes to this field. This is a display only field.

VIDEO MEMORY

This field displays the amount of system video memory. You do not need to make changes to this field. This is a display only field.

The Advanced Menu

Selecting *Advanced* from the menu bar displays the Advanced menu. Among other options, the Advanced menu allows you to make changes to the Peripheral and Video Display Type.
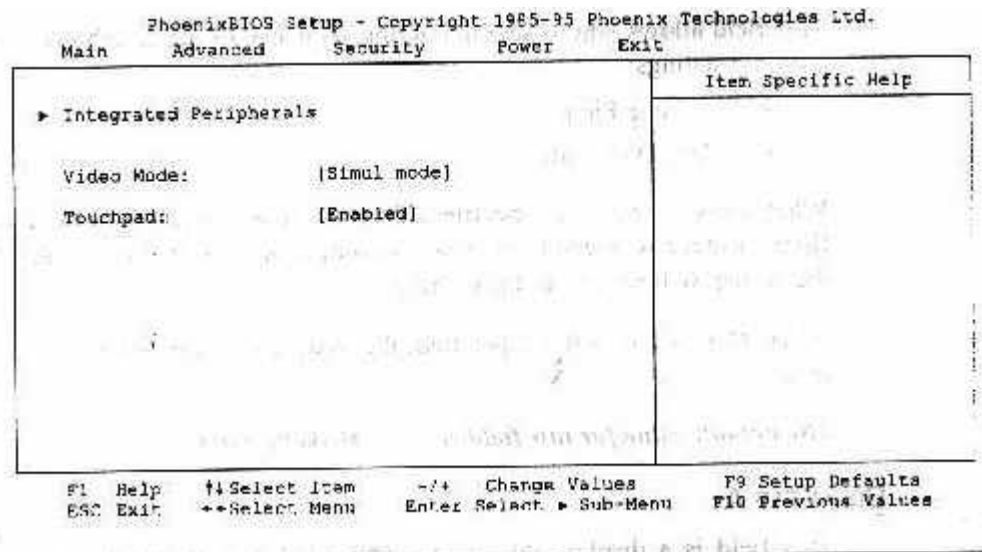
INTEGRATED PERIPHERALS

Pressing the <Enter> key when this field is highlighted calls up the following submenu:

```
        PhoenixBIOS Setup - Copyright 1985-95 Phoenix Technologies Ltd.
             Advanced

                     Integrated Peripherals                    Item Specific Help

     Serial Port:        [COM 1]                            Set COM port address.
     Infrared:           [Disable]
     Parallel Mode:      [Bi-Directional]




     F1  Help     ↑↓ Select Item    -/+  Change Values      F9  Setup Defaults
     ESC Exit      → Select Menu    Enter Select ► Sub-Menu  F10 Previous Values
```

This submenu allows you to configure the Notebook's parallel and serial ports. Each field on this submenu is covered below.

SERIAL PORT

This field allows you to configure the Notebook's Serial port by selecting a unique address and interrupt request. The following configuration options are available:

> Disabled
> com I
> COM 2
> COM 3
> COM 4

If you do not have a device connected to the Serial port, specify *Disabled* for this field as this will save power and serve as an additional security measure.

***The default value for* this field *is:* COM 1**

[LM 2-9]

INFRARED (SIR)

This field allows you to enable or disable the InfraRed port located on the rear of the Notebook. The InfraRed (SIR) port allows you to transmit and receive wireless data communications between your Notebook and another SIR-equipped device, such as a printer or a another computer. The values for this field are:

Disabled

com I

COM 2

COM 3

COM 4

The default value for this field is: Disabled

PARALLEL MODE

This field allows you to set the parallel port mode. The following options are available:

Normal
Bi-Directional
ECP
EPP
Disabled

Bi-Directional mode permits data flow in two directions, whereas Normal mode supports output data flow only. When EPP (Extended Parallel Port) mode is specified greater throughput is provided by automatically permitting the transfer of data in two directions to EPP aware peripherals. When ECP is specified in the Setup Program, the parallel port operates in the Extended Capabilities Port mode. This mode is only supported with ECP aware peripherals.

The default value for this field is: Bi-Directional

Now, press the escape key to return to the Advanced Menu.

VIDEO MODE

This **field** allows you to specify between three display type options. They are:

Simul Mode (Simultaneous Viewing Mode)
LCD Mode
CRT Mode

[LM 2-10]

Simul **mode** allows you to simultaneously view the Notebook's and externally

connected monitor displays. *LCD* mode allows you to view the Notebook's display only. *CRT mode* allows you to view the externally connected monitor display. The display type can be chanced on the fly by using the [Fn + F8] hot key combination to toggle between *LCD, CRT, and Simul mode.*

The default value for* this field is: *CRT

TOUCHPAD

The touchpad serves the purpose of a two-button mouse, allowing you to move the cursor around the screen and make selections in GUI software programs like Windows. When this field is set to enabled, the Notebook's internal touchpad will be activated. Connecting a serial mouse to the serial port on the rear of the Notebook will automatically disable the touchpad.

The* default *value for* this field *is: Enable

The Security Menu

The Notebook's advanced system of security allows you to set two different passwords to prevent unauthorized access to system resources, data, and the BIOS Setup Program. From this menu, you can also configure a Password on Boot and Password on Resume. Furthermore, a separate password can be assigned to restrict access to the BIOS Setup Program. This section covers each parameter of the Security Setup.

Selecting *Security* from the menu bar displays the following menu:

[LM 2-11]

```
          PhoenixBIOS Setup - Copyright 1985-95 Phoenix Technologies Ltd.
     Main      Advanced      Security      Power      Exit

                                               ┌────────────────────────┐
                                               │   Item Specific Help   │
     Admin. Password:      [User Entry]        │                        │
     Primary Password:      User Entry         │                        │
     Backup Password:      [Execute]           │                        │
                                               │                        │
     Password on Boot:     [Disabled]          │                        │
     Password on Resume:   [Disabled]          │                        │
                                               │                        │
                                               │                        │
                                               │                        │
                                               │                        │
                                               │                        │
                                               │                        │
                                               │                        │
                                               │                        │
                                               └────────────────────────┘

     F1  Help      ↑↓Select Item     -/+   Change Values      F9 Setup Defaults
     ESC Exit      ←→Select Menu    Enter Select ► Sub-Menu   F10 Previous Values
```

Each field of the Security menu is covered in detail below.

ADMIN. PASSWORD

This field indicates whether or not an Administrator password, sometimes called a Supervisor password, has been set. This is a display only field.

SETTING ADMIN. PASSWORD

The BIOS Setup program allows you to specify two separate passwords: an *Admin.* password and a *Primary* password. When enabled, the Admin. Password is required for entering the BIOS Setup program. The passwords are not case sensitive. In other words, a password can be entered using either upper or lower case letters; it makes no difference.

This field allows you set the Admin. password. To set the Admin. password, highlight this field and press the <Enter> key. The following dialog box appears:

```
                        Set Admin. Password

Enter New Password:                            [          ]

Confirm New Password:                          [          ]
```

[LM 2-12]

Type the password and press the <Enter> key. You can type up to seven alphanumeric characters. Symbols and other keys are ignored. To confirm the password, type the password again and press the <Enter> key. The Admin. password is now set. This password allows full access to the BIOS Setup menus.

CHANGING OR ERASING PASSWORDS

To change the password, enter the Set Admin. Password dialogue box and follow the same steps as above.

To erase the password, enter the Set Admin. Password dialogue box. On the Enter New Password line, continue to press the space bar until the cursor moves to the end of the line. Pressing <Enter> will move the cursor to the Confirm New Password line. Press the space bar until the cursor moves to the end of this line and press <Enter>. The password has now been erased.

PRIMARY PASSWORD

This field indicates whether or not a Primary password has been set. This is a display only field.

SET PRIMARY PASSWORD

In order to set the Primary Password, you must first configure the Admin. Password. When enabled, the Primary Password restricts access to all system resources. In other words, you will be prompted to enter the *Primary Password* prior to operating system bootup. To set the Primary password, follow the same instructions for setting the Admin. password .

CHANGING OR ERASING PASSWORDS

To change the password, enter the Set Primary Password dialogue box enter and confirm your new password. Press <Enter> and your new password has been set.

To erase the password, enter the Set Primary. Password dialogue box. On the Enter New Password line, continue to press the space bar until the cursor moves to the end of the line. Pressing <Enter> will move the cursor to the Confirm New Password line. Press the space bar until the cursor moves to the end of this line and press <Enter>. The password has now been erased.

BACKUP PASSWORD

Move the highlighted cell to this field and press <Enter> to backup the password to floppy diskette.

[LM 2-13]

PASSWORD ON BOOT

When this option is enabled, the system will require a password before bootup.

The options for this field are:

Disabled

Enabled

The default value for **this field** *is: Disabled*

PASSWORD ON RESUME

When enabled, the system will request the user enter a password before the system exits resume mode and re-enters normal operation. The options for this field are:

Disabled
Enabled

The default value for *this field is: Disabled*

The Power Menu

The Power menu of the Setup program allows you to enable and adjust the advanced features of the Notebook designed to conserve power. Enabling these features will extend the life of the battery pack between charges. To make changes to power management settings, select Power from the menu bar. The following menu appears:

```
           PhoenixBIOS Setup - Copyright 1985-95 Phoenix Technologies Ltd.
     Main      Advanced      Security      Power      Exit

                                                 Item Specific Help
     Power Savings:        [Customize]
     AC Power Save:        [On]          Selects Power Management
     Standby Timeout:      [3 Min.]      Mode. Choosing modes
     Save to RAM Time-out: [3 Min.]      changes system power
     Save to Disk Time-out:[10 Min.]     management settings.
                                         Maximum setting
     Fixed Disk Time-out:  [2 Min.]      conserves the greatest
     DIM Mode Time-out:    [30 Sec.]     amount of system power
                                         while Minimum setting
     Alarm Resume:         [OFF]         conserves power but
     Alarm Resume Time:    [00:00:00]    allows greatest system
                                         performance. To alter
                                         these settings, choose
                                         Customize. To turn off
                                         power management,
                                         choose OFF.


     F1  Help     ↑↓Select Item    -/+   Change Values      F9 Setup Defaults
     ESC Exit     ←→Select Menu    Enter Select ► Sub-Menu  F10 Previous Values
```

An explanation of each menu item is covered in this section.

POWER SAVING

This menu item allows you to set power management features with pre-defined values. The available options for this field are:

Off

Customize
Maximum Performance
Maximum Battery Life

If this menu item is set to *Disable,* power management features will not function regardless of other field settings on this menu.

The Customize option allows you to make your own selections from the following fields within the Power Menu.

When this field is specified as *Maximum Performance,* best system perfon-nance is achieved with some power conservation. The remaining fields within the Power Menu will be set to pre-defined values that ensure maximum power savings.

When set to *Maximum Battery Life,* system power will be conserved to its greatest amount. The

remaining fields within the Power Menu will be set to pre-defined values that ensure maximum power savings .

The default value for **this field** *is: Customize*

AC POWER SAVE

When enabled and the Notebook is running on AC current, all power management is enabled. When disabled and the Notebook is running on AC current, all power management is disabled during on mode or when back to full mode when resuming from standby or suspend mode. The available settings for this field are:

On
Off

The default value for **this field** *is: On*

STANDBY TIMEOUT

This menu item allows you to specify how much time of inactivity must elapse before the system automatically transits to standby mode. In Standby mode all devices are powered off and the system enters a low power CPU state. Available options for this field are:

[LM 2-15]

Disable
1 Min.
2 Min.
3 Min.
5 Min.
10 Min.
15 Min.
30 Min.

The **default value for** *this field is: 3* **Min.**

SAVE TO RAM TIMEOUT

This field determines the amount of time the system needs to be in the Standby mode before entering the Suspend mode. In this mode the system is saving to P,AM. When set to *Disable,* the system cannot suspend operations. The possible settings for this field are as follows:

Disabled
1 Min.
2 Min.
3 Min.
4 Min.
10, 15, 30 Min.

The default value for *this field* is: *3 Min.*

SAVE TO DISK TIMEOUT

When enabled, the system will save all system settings and the current system state to Disk. When set to Disable, the system will Suspend to RAM. The possible settings for this field are as follows:

Disable
1 Min.
2 Min.
3 Min.
5 Min.
10 Min.
15 Min.
20 Min.
30 Min.

The default value for this field is: *10 Min.*

[LM 2-16]

FIXED DISK TIMEOUT

This field allows you to specify the period of inactivity required before the hard

disk spins down and enters the standby (motor off) state. The possible options for this field are:

Disable
1 Min.
2 Min.
3 Min.
5 Min.
10 Min.
15 Min.
20 Min.

The default value for *this field* is: *2* Min.

DIM MODE TIMER

This field indicates the amount of time the keyboard needs to be inactive before panel brightness is gradually decreased. The available options for this field are:

Disable
15 Sec

30 Sec.
60 Sec

The* default value for this field *is: 30 Sec

ALARM RESUME

This option allows you to set a specific time for the system to resume. The possible options are:

ON
OFF

If you set this field to *ON,* you must set the *Alarm Resume Time* field as well.

ALARM RESUME TIME

This option allows you to specify the time the system will resume. Enter the time in hours, minutes and seconds in a 24-hour format. For example, indicate that the system should resume normal operation at 1:00 p.m. by setting this field with a value of 13:00 hours.

Once you have made all of your selections from the various menus in the Setup program, you should save your changes and exit Setup. Select *Exit* from the menu bar to display the following menu.

The Exit Menu
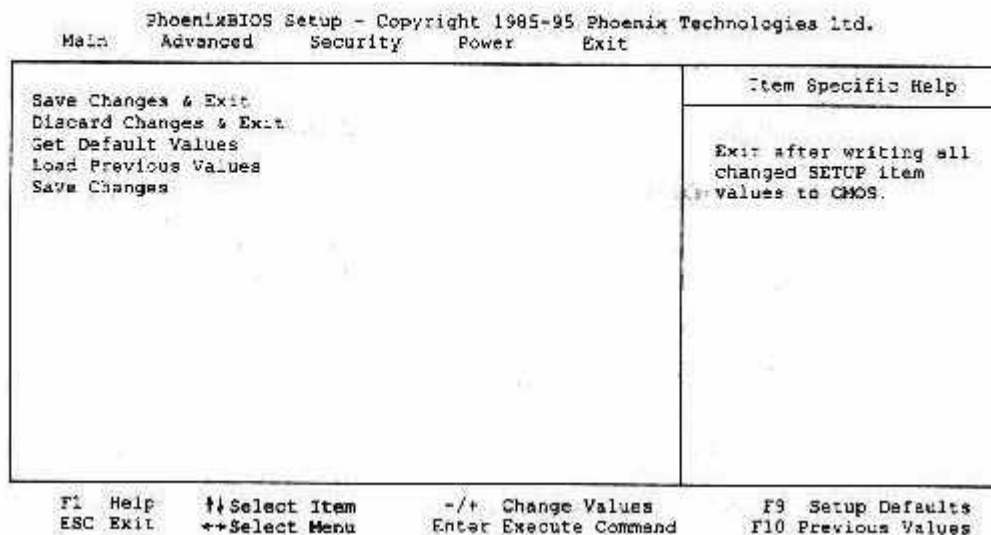
Pressing the* Esc key does *not* exit *this menu. You must* select one of *the optionsfrom this menu or a menu bar item* to *exit this menu.

Each of the options on this menu is described below.

[LM 2-18]

SAVE CHANGES AND EXIT

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to Non-Volatile RAM. Changes you made to the Setup program must be changed to Non-Volatile RAM in order to make them operative. Non-Volatile RAM differs from standard RAM memory **in** that it is sustained by an on-board battery and stays on even when the Notebook is turned off.

Once your selections have been saved, the Setup program displays the following message:

```
┌─────────────────────────────────────────────┐
│                  Notice                      │
├─────────────────────────────────────────────┤
│        Changes have been saved.              │
│                                              │
│                [Continue]                    │
└─────────────────────────────────────────────┘
```
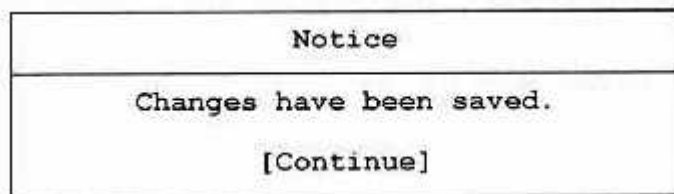
The next time you bootup the Notebook, the BIOS will attempt to load the values you saved in Non-Volatile memory. If these values cause the system boot to fail, reboot and press <F2> to enter the Setup program. Once in Setup, you can try to change the values that caused the system boot to fail. If the problem persists, load the default values as described below.

If you attempt to exit the Setup program without saving your changes, the program will prompt you with a message asking if you want to save your changes before exiting.

DISCARD CHANGES AND EXIT

This option should only be used if you do not want to save the changes you have made to the Setup program. Upon selecting this option the following screen appears:

```
┌───────────────────────────────────────────────────────┐
│                     Warning!                           │
├───────────────────────────────────────────────────────┤
│          Configuration has not been saved!            │
│                 Save before exiting                    │
│                                                        │
│       [Yes]                          [No]              │
└───────────────────────────────────────────────────────┘
```
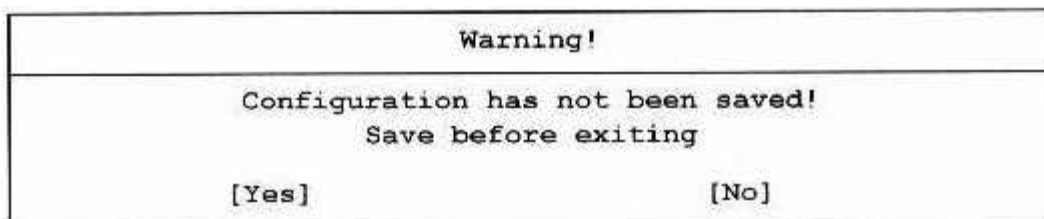
If you have accidentally chosen this option, press the Esc. key.

[LM 2-19]

GET DEFAULT VALUES

This option allows you to load the default values for each of the parameters on the

Setup menus. When this option is selected, the following message is displayed:

```
┌─────────────────────────────────────────┐
│              Notice                     │
├─────────────────────────────────────────┤
│ Default values have been loaded.        │
│                                         │
│              [Continue]                 │
└─────────────────────────────────────────┘
```
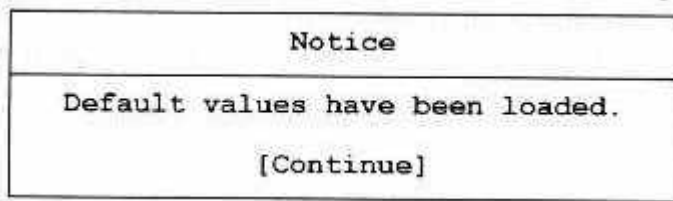
You can now select *Save Values and Exit* or make other changes before saving the

values to Non-Volatile RAM.

LOAD PREVIOUS VALUES

This option allows you to discard the selections you've made and restore the values
you previously saved. After selecting this option, all selections are updated, and the
following message is displayed:

```
┌─────────────────────────────────────────┐
│              Notice                     │
├─────────────────────────────────────────┤
│ Previous values have been loaded.       │
│                                         │
│              [Continue]                 │
└─────────────────────────────────────────┘
```
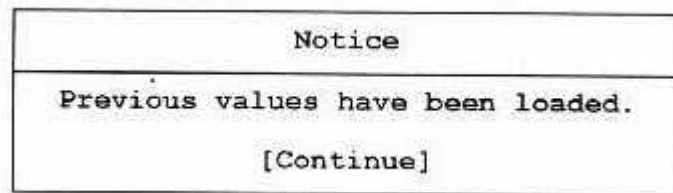
This option saves your selections without exiting the Setup program. You can then
return to other menus and make changes. After selecting this option, all selections
are saved, and the following message is displayed:

```
┌─────────────────────────────────────────┐
│              Notice                     │
├─────────────────────────────────────────┤
│ Changes have been saved.                │
│                                         │
│              [Continue]                 │
└─────────────────────────────────────────┘
```
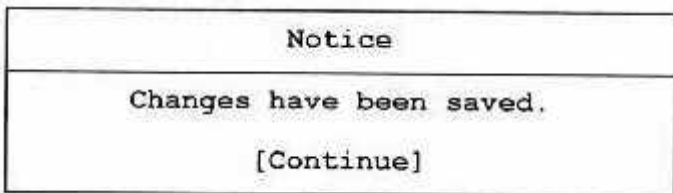
This concludes this chapter on the BIOS Setup program. The next chapter covers
operation of the Notebook computer.

[LM 2-20]

LM Chapter 3

CHAPTER 3: OPERATION

Introduction

> This chapter provides information pertaining to the Video Display Controls used to adjust the LCD screen's appearance. Also included in this chapter is a brief overview of the keyboard, how the System Window indicator symbols help you to diagnose or determine any of the specific computer activities going on at a given time, and a description of the Notebook's audio features.

Video Display Controls

> The computer uses special key combinations to control the LCD display's Brightness and Contrast. The key combinations are called hot keys.

Some Important Keys On The Keyboard

> Your Notebook computer features a low-profile keyboard that emulates all the functions of a full-size 101/102-key keyboard including an embedded keypad and a full array of special function keys. This section covers the Notebook's keyboard, and identifies several keys which you will commonly use when working with either the Disk Operating Software or other application software.
>
> The alphabet letters located on the keyboard are in the same position as those found on a standard typewriter. The usage for these alphabet keys are straightforward. But several other keys located on the Notebook's keyboard have special functions which you may be unfamiliar with. This chapter identifies some of the special computer keys on the keyboard and discusses their functions when used with either Disk Operating System Software or other application software, such as word processors, spread sheet applications, or database management. In addition, the twelve function keys located directly above the keyboard and how they relate to application software are covered. Try locating these keys on the Notebook itself. *Figure 3-1* shows the keyboard layout.

Figure3-1: TheKeyboardLayout

[LM 3-2]

[Esc]: The escape key allows you to cancel any specific command you may have just keyed in. For example, if you mistakenly hit the function key, [FI], in your word processor or spread sheet program, but want to "cancel" the command, press [Esc]. When pressed in combination with the Fn key [Fn + Escl, the system will enter the Save to RAM mode.

2.**[PrtScr/SysRq]:** Pressing this key will cause whatever is on the screen at the time to be printed. Note that in some software programs, this key may be used in conjunction with other keys for other specific functions. Consult your software user's manual for more information. To use SysRq, simultaneously press the

[Fn + PrtScr / SysRq] keys.

[Pause/Break]: Pressing this key will temporarily stop the system from executing a certain command. This key's function is also application specific. For example, if you are printing a document from the DOS environment, pressing this key will pause the printing of that document. To activate the Break function, simultaneously press the [Fn + Pause/Break] keys. The break function can be used in conjunction with the control key [Ctrl+Break] to cancel a command.

4.**[Enter]:** While using application software, this key's purpose is similar to a typewriter's return key; pressing this key will position the blinking cursor to the beginning of the next line on the display screen.

5.**[Fn]:** This key is located in the lower left comer of the keyboard. Pressing this key engages the alternative function (labeled in blue) on selected keys. For example simultaneously pressing the [Fn + F3] displays the charge status of the battery.

6.**[Scroll Lock]:** When scroll lock is engaged, pressing the cursor control keys moves the cursor by fields of text. Pressing this key a second time will disengage the scroll lock function .

7.**[Alt]:** Used by itself, the alternate key has no effect in carrying out any commands, but functions with the [Ctrl+Del] key to reboot or restart your operating system program. For other application software, the Alt key may perform a different function. Thus, refer to the User's Guide of the software you are using for details on how to use this key.

8.**[Ctrl]:** Used by itself, the Control Key has no effect in carrying out any commands. It, like the shift key, is always used in combination with other keys. The Ctrl key's function depends mainly upon the type of software you are currently using. Refer to the User's Guide of the software you are using for details on how to use this key.

[LM 3-3]

9. [**Shift**]: Similar to the typewriter's shift key, this key allows you to type letters in "UPPER CASE."

10. **[Caps Lock]:** The caps lock key corresponds to a typewriter's shift lock key, but it only affects letter keys. The number keys and function keys are not affected. Even with the caps lock key on, if you want to generate the symbols and punctuation marks above the number keys, you must still use the shift key. Note that when the caps lock key is engaged, the caps lock status symbol appears in the LCD Status Display.

11. [**Num Lock**]: The numeric keypad can be activated by pressing the Num Lock key while holding down the [Fn] key. The numeric keypad is written on the key faces in blue. When activated, the Numeric Keypad Icon appears in the system window indicating the keypad is locked. The keypad lock status can be temporarily disabled by holding down the [Fn] key. To resume keypad status, release the [Fn] key. To deactivate this mode, press the Num Lock key again. When Num Lock is not engaged, hold down the [Fn key to use the "alternate" functions that are labeled in blue on the front of some of the keys.

12. **[Windows 95 Keys]:** These two keys are located next to the Alt keys, on either side of the space bar. With these two keys you will be able to take advantage of some of the advanced features of the new Windows 95 operating system. The specific features of these two keys are covered in your Windows 95 software manual.

Cursor Control Keys and Editing Keys

> The keys listed in this section are specifically used to move the cursor on the LCD Video Screen. When used in combination with other keys, these cursor control keys provide some very powerful editing functions.
>
> The cursor's location indicates where you can type text on the screen. Having the ability to quickly move the cursor around the screen while editing text will significantly improve your efficiency.
>
> The importance of these Cursor Control keys is more apparent when using application software such as word processors, spread sheet applications, and databases. Also, while using your operating system software (DOS), several of these keys play an important role in moving the cursor or editing. Refer to your software manuals for details on how to use these keys.

[LM 3-4]

> *Figure* 3-2 highlights both the Keyboard's Cursor Control and Text Editing keys.

A brief discussion of each key follows.

Figure 3-2: *Cursor Control and* Text *Editing Keys*

[-+] and [*-] Keys: Pressing either of these keys will move the cursor one character at a time in the direction shown on the arrow key.

[T] **and [@] Keys:** Pressing either of these keys will move the cursor one line at a time in the direction shown on the arrow key .

3 .**[PgUp] or [PgDn]:** These keys allow you to quickly move the cursor on the screen page-by-page, or window by window, depending on the software you are using.

4.**[Home]:** Refer to your application software manual to find out how your software specifically uses the Home key to quickly move the cursor to either the beginning of a document or the beginning of a line.

*5.***[End]:** Refer to your application software manual to find out how to use the End key to quickly move the cursor to the end of a line or to the end of a document.

6.**[Ins]:** The Insert key is used mainly for editing. It enables you to insert characters within the text while using DOS. Some applications, however, automatically insert text while within a document, so depending upon the software you are using you may or may not need to use this key.

[LM 3-5]

[Del]: This key is used for editing text at either the DOS command prompt or the text within a document. Pressing the Delete key will remove any characters directly in front of the cursor and then pull from the right the remaining typed characters.
[Back Spacel: While within a document, the Back Space Key allows you to move the cursor to the left and simultaneously erase characters in its path. Note that this is different from the left arrow key which will not erase any typed characters.

The Function Keys

Notice the twelve function keys in the top row of the keyboard. These keys appear in sequence ([FI], [F2], [F3].... [F] 1], [F12]) from left to right. The functions these keys perform vary with respect to the operating system and software in use. Refer to the apppropriate software user's guides for more detailed information for function key definitions.

Embedded Numeric Keypad

An embedded numeric keypad consists of 15 keys that make number intensive input more convenient. These keys have both numeric and cursor movement functions which are labeled in blue on the keycaps. When the numeric keypad is engaged, the NumLock icon will appear in the System Window. The keypad is activated in one of two ways:

1. While holding down the [Fn] key, toggle the [Num Lock] key on and off.

2. A second way is to temporarily activate the numeric keypad by holding down the [Fn] key when the Num Lock state is on. The numeric keys will be active as long as you hold down the [Fn] key.

The embedded numeric keypad also supports cursor control functions in addition to control keys (+-, -+, T, @, PgUp, PgDn, Home, End) found at the right side of the keyboard. You may alternatively activate the cursor control keys by pressing the Fn key and the keypad key simultaneously. The cursor control function is printed on the front side of the numeric keypad.

[LM 3-6]

Hot Keys for System Control

Key Combinations	Definition
Fn + ↓	Decrease brightness level
Fn + ↑	Increase brightness level
Fn + ←	Increase contrast level*
Fn + →	Decrease contrast level*
Fn + F3	Displays the charge status of the battery.
Fn + F5	Reverses the screen toggling function. The default setting is normal.
Fn + F7	Expands the screen vertically. The default

Fn + F7	Expands the screen vertically. The default for this setting is expanded.
Fn + F8	Toggles between activating an external monitor (CRT), the Notebook's monitor (LCD) or simultaneous viewing. If the hot key combination is not activated the system will refer to the CMOS setup setting.

[LM 3-7]

Key Combinations	Definition
Fn + End	Disables or enables system sound (audio/speaker output, and system beep). The default for this setting is enabled.
Fn + PgDn	Decreases the audio volume output.
Fn + PgUp	Increases the audio volume output.
Fn + Esc	Pressing this hot key combination will cause the system to Suspend to RAM.
Fn + A	Pressing this hot key combination will cause the system to Suspend to Disk.

The System Status Window

Located above the keyboard, the System Status Window display panel informs you of the Notebook's current operating status at a glance. If you are having trouble locating the system status window please see *Figure 1-4.* Upon activating a certain function, a symbol or icon corresponding to that ftinction will appear in the system window until you deactivate that feature. The symbol will remain in the window indicating that the feature is engaged.
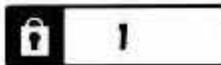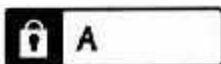
Figure 3-4 shows the "System Window Display" with all the symbols that can be displayed. A description of each of the icons is listed below.
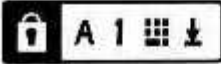
Figure 3-4: The System Window

Notice that the first icon that appears in the far left of the system status window consists five separate symbols. They are explained in detail in the order which they appear.

[LM 3-8]

Icon	Description
Pad Lock	The pad lock or keypad icon appears in the system window when you press the Notebook's [Fn] key indicating the keypad's cursor function is engaged. The icon disappears when you release the [Fn] key indicating the cursor function is no longer activated. Another way to turn the keypad icon on is by pressing the [Fn + Num Lock] key. When this is done, the keypad is locked and its numeric feature is engaged. The keypad lock status can be temporarily disabled by pressing and holding down the [Fn] key. The keypad lock status is enabled again when the [Fn] key is released. The keypad icon disappears when you press the [Fn + NumLock] keys again, indicating the keyboard lock is no longer activated. When the Pad Lock icon appears in the system status window, the embedded keypad will be active.
Scroll Lock	Upon pressing the [Scroll Lock] key, this icon appears in the system window indicating the scroll lock is engaged. Press the [Scroll Lock] key again to deactivate this feature and turn off the icon.
Num Lock	Upon pressing the [Num Lock] key, this icon appears in the system window indicating the embedded keypad's numeric feature is activated. Press the [Num Lock] key again to deactivate this feature and turn off the icon.
Caps Lock	Upon pressing the [Caps Lock] key, this icon appears in the system window indicating that the Caps Lock feature is engaged. Press the [Caps Lock] key again to deactivate this feature and turn off the icon.
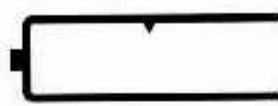
Icon	Description
Suspend	Upon entering a power saving suspend to RAM mode, the suspend icon will appear rolling in the system status window. Exiting the suspend mode and entering normal operation will cause the icon to disappear.
CD-ROM/ HDD	When this icon appears in the system status window, it

Activity	indicates that the CD-ROM or the hard disk is being accessed.
FDD Activity	When this icon appears in the system status window, it indicates that the internal floppy disk drive is being accessed.
PCMCIA Activity	When this icon appears in the system status window, it indicates that a PCMCIA card is being accessed.

Icon	Description
AC Power Icon	This icon indicates that the Notebook is being powered by an external AC source. If the icon is OFF, the system is off and the battery is not being charged. If the icon is ON, the system is on and the battery is not being charged. When the AC Power Icon is blinking, the battery is being charged.
Main Battery Icon/ Secondary Battery	The upper icon indicates the main battery status while the lower icon indicates the secondary battery status. When either icon is OFF it indicates that the corresponding battery (Main or Secondary)is not installed. When either of the icons is ON, it indicates that the corresponding battery is installed but inactive. When either of the icons is blinking (rate of 1/second), it indicates that the corresponding battery is installed and active.

Battery Life Status	Notice there are ten vertical lines in the battery icon. Each line indicates approximately 10% battery life. If all ten lines are showing, this indicates that the battery possesses full battery life, 100%. Nine vertical lines indicate approximately 90% battery life remaining. When there is only one vertical line, approximately 10% battery life remaining, this is referred to as low battery state. At this time there will be approximately 10-20 minutes of battery power left. When there are no vertical lines showing, the battery has entered the critically low state. The system beep will begin to sound, reminding you to save your data to HDD or floppy. Press [Fn + End] to disable the system beep. Failure to save your data now could result in a serious loss of time and effort.

Battery Status Icon	System Status Description
	If the Notebook is being operated on AC power and this icon appears in the system status window, it indicates that the battery is defective. The system will not charge a defective battery.
	If the Notebook is being operated on battery power and this icon appears in the system status window, it indicates there is very little battery life remaining. Begin backing up your data on HDD or FDD.
	If the Notebook is being operated on battery power and this icon appears "blinking" in the system status window, it indicates the battery has entered the critically low state. Save your work, replace the battery with a fully charged one or if available use AC power.
	The AC power is flowing to the Notebook, however, the battery is not being charged. This is an over-temperature protection feature for batteries. The system will not charge the battery under the following conditions:
	The battery temperature is over 40°C when the system begins to charge the battery.
	While charging the battery, the battery temperature exceeds 60°C. In this condition, the charging process stop until the battery temperature falls below 40°C; it will then begin charging again.
	The gas gauge icons rotate when the battery is ~~charging~~

charging.

[LM 3-12]

Battery Charging Control

When the AC Adapter is plugged in, the main battery will always be the **first** to receive a charging. After being charged to capacity, the secondary battery, assuming it is installed, will then be charged.

If the Notebook is not being charged by AC power, the secondary battery, assuming one is installed, will be the first battery to be discharged. After the second battery runs down, the system will begin using the main battery.

If an over 60'C temperature condition occurs while charging the main battery, the process will be stopped. The system will then search for a secondary battery pack, and if located, will begin to charge it. Once the secondary battery charging process commences, even if the main battery temperature falls below 40'C, the system will not switch to charging the main battery until the secondary battery is completely charged.

Using the Touchpad

The touchpad is a touch-sensitive pointing device that provides all the features of a mouse. Although its operation differs from a mouse, its function is quite the same; to move the cursor around the screen. Please refer to *Figure 3-5* and the following explanation for the touchpad's operating instructions.

[LM 3-13]

Touchpad - A touch sensitive pad which controls the direction of the cursor on the screen.
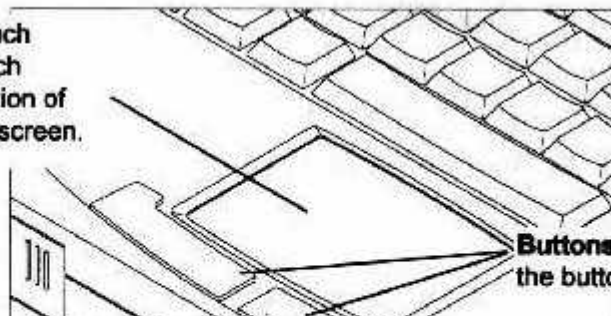
Buttons - function similar to the buttons on a mouse

Figure 3-5: The Touchpad

Please refer to the following for instructions on how to operate the touchpad.

I. Place your fingers on the keyboard in the normal typing position.

2. The touchpad is easily accessible by moving either your left or right thumb off the space bar and on to the touchpad.

3.Gently move your thumb across the touchpad in the direction you want the cursor to move. The pad detects the change in pressure and moves the cursor in the corresponding direction.

4.With a conventional mouse, selections are usually made by double-clicking the mouse's left button. The touchpad also supports this feature. It is described in detail below. If you are familiar with the operations of a mouse you may only need to scan the information below as a review.

The touchpad buttons have essentially the same function as mouse buttons. Clicking these buttons make selections, drag objects, or perform a variety of other functions depending on the software. To select an object, first move the pointer over the object you want to select, and then press the lower button one time and release it. The functionality of these buttons depends on your software. Refer to your software user's manuals for specific information on the touchpad (mouse) functions.

Double-clicking is a common technique for selecting objects or launching programs from icons. Once you have moved the pointer over the object you wish to select, then rapidly press the lower button two times. This action is commonly referred to as "double-clicking on an object."

[LM 3-14]

Many of the functions within the Windows 95 application can be launched by using *Single-clicking*. Once the cursor has been moved to the object which you want to select, press the lower touchpad button once, This single-clicking will select the desired item and prompt the software to perform the related operation.

Double-tapping is another technique for selecting objects or executing applications from icons. For the most part *double-tapping* is very similar to the *double-clicking* technique of a mouse. The difference lies in the fact that instead of *double-clicking* on a mouse button, the user *double-taps* on the pressure sensitive touchpad to make the selection. Once the cursor has been moved to the object which you want to select, lightly double-tap the pressure sensitive touchpad itself. This double-tapping on the touchpad will select the desired item and prompt the software to perform the related operation.

Many of the functions within the Windows 95 application can also be launched by using *Singletapping.* Once the cursor has been moved to the object which you want to select, lightly singletap on the pressure sensitive touchpad. This single-tapping on the touchpad will select the desired item and prompt the software to perform the related operation.

When working with programs that employ a graphic user interface (GUI), such as Windows, *dragging* objects from one point on the screen to another is a technique you will have to master. To drag an object, first move the pointer over the object, then press and hold down the lower button. Now without releasing the button, move the object to a new location on the screen by moving your finger across the touchpad. Once the object is in the desired position, release the button to drop the object in place.

The SIR Module

The Notebook is equipped with an SIR module located on the rear panel. Please *see **Figure 3-6*** if you are having trouble finding this module. The SIR (Serial Infrared) module consists of one Light Emitting Diode (LED) and one photo sensor. The operation of the SIR module is similar to the operation of a television remote control device. The LED functions as a transmitter and the photo sensor acts as a receiver. The transmitter emits a signal stream consisting of data on the form of pulses of infrared light. The receiver picks up pulses of infrared light transmitted by other SIR modules.

[LM 3-15]
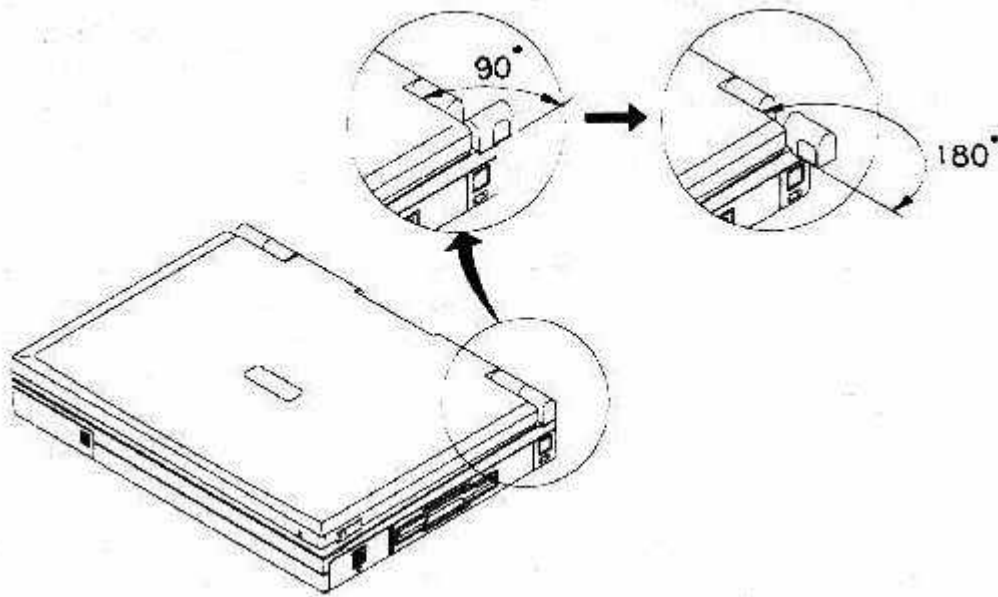
Figure3-6: TheSIR(SerialInfraRedModule)

T'he SIR module allows wireless, serial communication between the Notebook and other SIR equipped devices such as a printer or another computer. Use an IRspecified application to transmit or receive data via the Notebook's SIR module.

The design of the SIR module is extremely intuitive. While most Notebook's are equipped with a stationary SIR module, your Notebook's SIR module has freedom of movement from O' to 180'. Follow he guidelines listed below when using the SIR module to transmit or receive data.

> *In the LCD panel closed position, the SIR module supports a wide range of angular settingfrom 00 to 180'. However, with the LCD panel open the SIR is restricted to two angular settings: O' or 180'.*

> Make sure the SIR field in the BIOS Setup program is set to Enabled and the Serial port 2 is active. Refer to Chapter 2 for information on the BIOS Setup program.

[LM 3-16]

> Ensure that the Notebook's SIR module is properly lined up with the other device's SIR module. The SIR baud rate can reach II 5,200 at a distance of I meter and bias angle of 15'. The transmission distance can be further lengthened by reducing the baud rate or by perfectly aligning the two devices.
> There should be a clear, unobstructed path between the two SIR modules; otherwise the optical signal will be blocked. Likewise, do not place anything between the two SIR modules during data transmission.
> Do not move either the Notebook or the other device during transmission of data. Moving either the Notebook or the other device during transmission distorts the optical signal resulting in loss of data or a system crash.
> An error can occur in SIR transmission if subjected to an environment with high levels of noise. To avoid transmission error do not transmit SIR signals near equipment with compressors, such as refrigerators or air conditioners.

Multimedia Sound System

> The Notebook Computer's built-in audio capabilities allow you to take advantage of a wide range of education and entertainment multimedia software available on today's growing market without the additional costs of add-on cards and peripheral hardware. The multimedia sound system features a sophisticated on-board FM sound generator that produces realistic, music and human voice sounds in 16-bit stereo. The integrated speakers are located in the upper left and right comers of the keyboard pad. The internal microphone is located on the lower right hand side of the LCD screen. The Notebook is also equipped with both an input and output audio ports for external audio units. They are located on the left hand side of the Notebook next to the AC Adapter port. Please see *Figure 1-2* in Chapter I if you are having trouble locating any of these features. An external microphone can be connected the microphone jack. External speakers or headphones can be connected to the Notebook's Audio-out jack. All audio features are software controlled. The audio utility diskette bundled with the Notebook contains several AudioDrive application programs that run under the Windows environment. These applications

are compatible with Sound Blaster Pro, and the Microsoft Windows Sound System. With these programs, you can record, store, compress, edit, and playback a variety of sounds and music.

[LM 3-17]

The Notebook's multimedia sound system includes the following features:

16-bit stereo
Record, compress and playback voice for both sound and music
5 channel mixer
Stereo inputs for line-in, CD-ROM and music synthesis and a mono input for the microphone
Audio mixer controls for inputs and outputs
Data transfer via DMA or programmed 1/0
Power management features
Integrated 16-bit A/D and D/A converters
ADPCM as well as patented ESPCMTM compression for lower bit rates
Programmable volume control for both record and playback functions
Programmable sample rate up to 44KHz for record and playback
Windows complaint and OLE compliant
Supports The Microsoft(g) WindowSTM Sound System
Sound BlasterTm and Sound Blaster PROTM compatible with FM synthesis chips
A 20 Voice FM sound generator capable of simultaneous voicing of 18 melody sounds and 4 operator-voices via software control.
MIDI serial port compatible with MPU401 UART mode

Audio Volume Control

The Notebook supports hot key combinations to control the audio output volume:

1. [Fn + PgDn]decreases audio output volume

2. [Fn + PgUp]increases audio output volume

3. [Fn + End]:mutes system sound including Low Battery Warnin- Beep and Stereo Speaker Out sound .

This concludes Chapter 3. The next chapter covers attaching peripherals such as a printer or an external monitor.

LM Chapter 4--Peripherals

CHAPTER 4: PERIPHERALS

Your Notebook computer is equipped with several ports for connecting a number of peripheral devices such as a printer, a modem, or an external monitor. There are also two PCMCIA sockets for connecting industry standard PCMCIA cards and stereo jacks for connecting external audio equipment. For added expansion and versatility, you can connect your Notebook to an optional proprietary I/0 Replicator (docking station) via the 240-pin connector located in back of the Notebook.

This chapter covers the following topics:

*An overview of the peripherals that can be connected to the Notebook

*The necessary requirements for using these peripherals with your Notebook

*Instruction on how to connect these devices to your Notebook

The peripheral devices covered in this chapter are listed below:

Parallel device

Serial device

External monitor

External keyboard or PS/2 mouse PCMCIA interface

Audio Microphone In and Speaker Out

Additional Equipment

Before attempting to connect a peripheral device to the computer, make sure you are familiar with the Notebook's various I/O ports. Refer to the diagrams included in Chapter I to identify the following I/O ports. The first five ports in the following list are located on the rear of the Notebook.

An external monitor connector

One parallel port

One serial port

240-pin docking station connector

An external keyboard/ PS/2 mouse connector

Two PCMCIA ports

An external microphone connector

A speaker out connector

External Monitor

The Notebook has a port for connecting an external VGA monitor. The port is a standard 15-pin analog connector commonly used with these monitors. The display output of the computer supports standard VGA color and resolution on a color monitor.

Parallel Device

This parallel port uses a 25-pin connector, allowing you to attach any equipment that is compatible with this connector standard. This port is most commonly used for connecting a printer. Most printers have a parallel interface. These include dot matrix, ink-jet and laser printers. The parallel port supports both EPP and ECP capabilities.

Your application must be EPP aware to take advantage of the enhanced parallel port's greater throughput. Likewise, your application must be ECP aware to make use of the parallel port's ECP capabilities.

[LM 4-2]

Serial Device

This is a standard 9-pin serial port. Any device that uses this standard can be connected to the Notebook. For example, most pointing devices such as a mouse or graphic tablet can be directly connected to the computer. External modems or fax/modems will usually employ a standard cable. If you have any doubt about the cables required for equipment you plan to purchase, you should consult technical support to ensure you have the correct cables.

240-pin Docking Station Port

This port is for the connection of a docking station. A docking station enhances the performance of the Notebook. Connected to a docking station, the Notebook has the capability to emulate a desk top PC. The docking station is discussed later in Chapter 6 of this manual under the section *Optional Equipment.*

External Keyboard or PS/2 Mouse

This 6-pinned port allows you to attach a full size enhanced keyboard to the Notebook. You can use any standard desktop computer 101/102-key enhanced keyboard. If you attach an external keyboard and reboot, the computer will automatically detect it. This port also allows you to attach a PS/2 compatible mouse. The PS/2 mouse and the external keyboard share the same auxiliary port. **When using the PS/2 mouse or the external keyboard, you'll need to make the connection before powering on the Notebook.** This will prevent recognition failure.

External Mic and Speaker Out

There is a built in microphone located on to the lower right comer of the LCD screen. You can use it to record voice, sound, and music. There are also two audio jacks, an External Mic and Speaker Out, located above the AC Adapter port on the left side panel of the Notebook. The external microphonejack is used for connecting an external audio in device such as a microphone. You can connect external stereo speakers or headphones to the Speaker Out jack.

> *The Audio jacks are three-terminal stereo jacks. They are not compatible with two-terminal mono plugs. Connecting a mono plug into tlle Speaker Outjack, may damage the Notebook. The interruption used is IRQ 5, DMA is 1, IIO address is 220.*

[LM 4-3]

Connecting Peripheral Devices

Connecting An External Monitor

Please refer to *Figure 4-1* and the following for an external monitor connection.

I . Make sure the Notebook and the monitor is in the power off mode.

2.Ensure that the monitor is the correct type. Do not use a monitor that does not match the VGA standard.

3.Connect the monitor cable to the monitor before connecting the cable to the Notebook's VGA port.

4.Connect the AC Adapter to the computer. (For using AC power only)

5.Connect the monitor to a power source.

6.Turn on the computer.

7. Turn on the monitor.
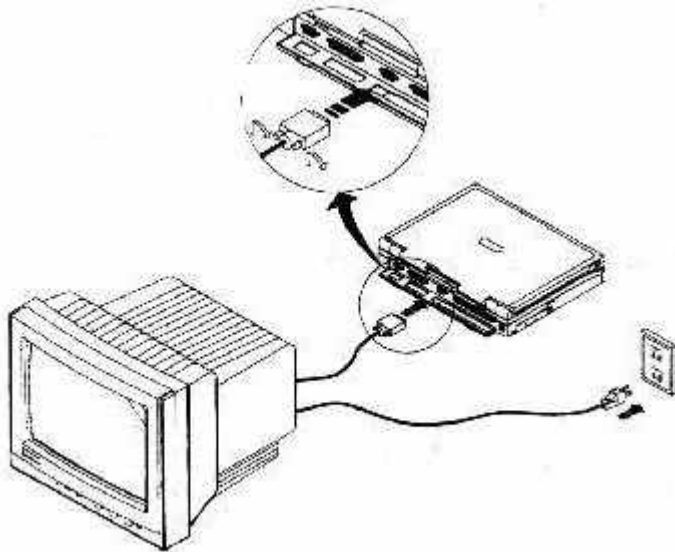
Figure 4-1: Connecting an External Monitor to the Notebook's VGA Port

To activate the external monitor you'll need to press the hot key combination.

Press [Fn + F8] on the Notebook's keyboard to toggle between the Notebook's

[LM 4-4]

LCD display, simul-scan (simultaneously viewing the Notebook's LCD and external monitor screen) and an external monitor. The Notebook's display panel will be turned off and the external monitor will become the active display.

The Notebook's display controller supports standard VGA mode (for the LCD) which has a screen resolution of 640 x 480 pixels (screen dots).

Connecting Parallel Devices

To connect a parallel device to the computer you'll need the standard parallel 25pinned connector cable mentioned earlier. Before you connect any device, check the documentation that came with the equipment to see if you need to make any settings or adjustments to the equipment before using it. This might include setting switches to configure the equipment so that it will operate properly with the Notebook and the software you plan to use. Once the equipment is ready, all you will probably need to do is attach the connecting cable. Please refer to *Figure 4-2*.
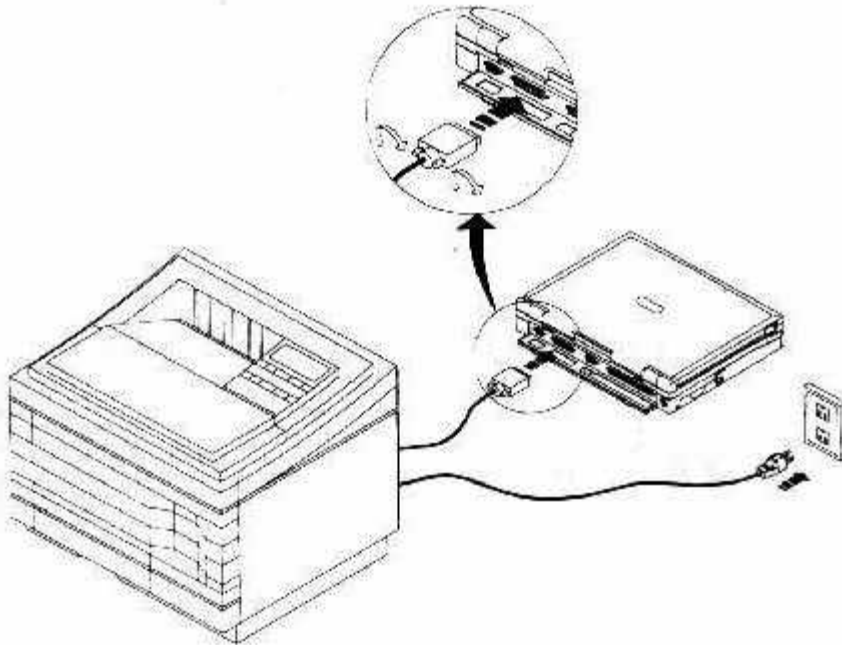
Figure 4-2: Connecting a Printer to the Notebook's Parallel Port

[LM 4-5]

When using a printer device, it is recommended that you turn on the Notebookfirst before turning on theprinter.

Connecting Serial Devices

The Notebook has one Serial Port. Please refer to *Figure 4-3*. Its address can be set via the BIOS Setup program. Refer to Chapter 2 for information on BIOS

Setup.
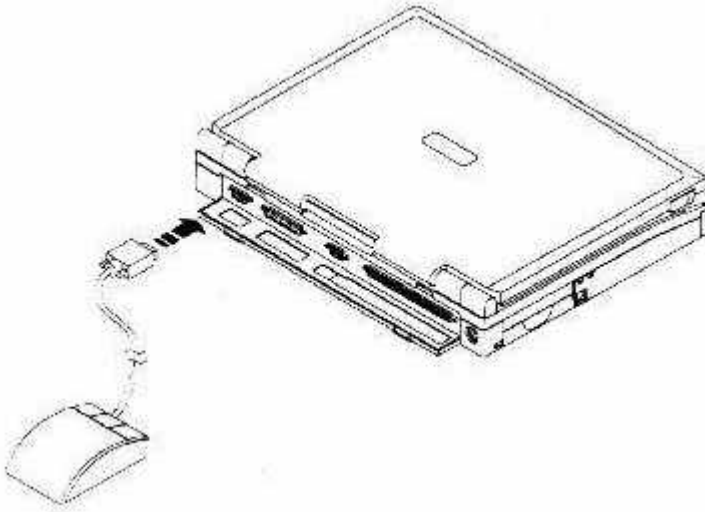
Figure 4-3: Connecting a Mouse to the Notebook's Serial Port

Connecting An External Keyboard

The Notebook has a connection for a full-size enhanced 101/102-key keyboard commonly used with desktop computers. A PS/2 mouse can also be connected to the same port. The external keyboard which needs to be equipped with a PS/2 connector. You should be able to obtain a keyboard adapter from your dealer if your external keyboard is not equipped with a PS/2 connector.

[LM 4-6]

To connect a keyboard, perform the following steps:

Make sure the computer is turned off.

2.If the keyboard has a PS/2 type connector, plug it into the Notebook's keyboard connector port. If the keyboard has a PC-type jack, connect it to the adapter cable and then plug the other end of the adapter cable into the computer .
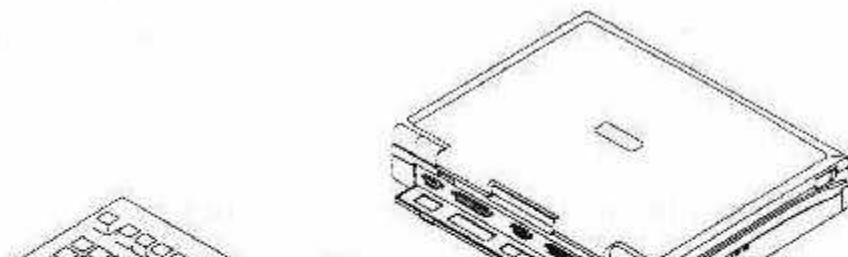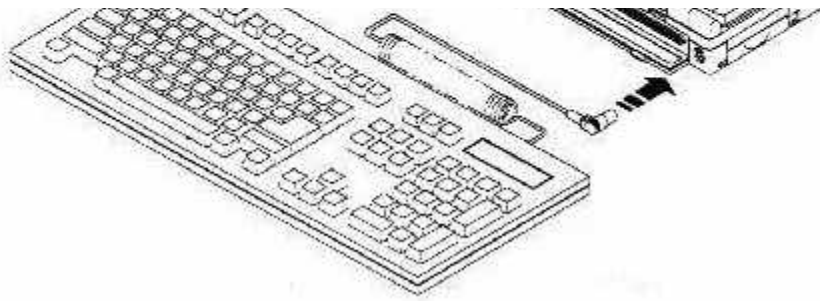
Figure 4-4: Connecting an External Keyboard to the Notebook's PS12 Port

> *When an external keyboard or PS12 mouse is connected, the touchpad Is automatically disabled. For the touchpad to be detected and recognized by the system, a PSI'2 mouse must be connected before turning on the computer.*

[LM 4-7]

PCMCIA Cards and Expansion Sockets

Your Notebook computer features two PCMCIA expansion sockets designed for interface with two Type If cards or one Type III card. This sophisticated innovation allows you to expand and customize your Notebook computer to meet a wide range of computing needs without sacrificing portability. PC cards accommodate a number of expansion options. Memory cards, modems, hard disks, and network (LAN) adapters are just a small sample of the PC card products available on today's market.

Inserting and Ejecting PCMCIA Cards

The PCMCIA (Personal Computer Memory Card International Association) is a widely accepted industry standard that defines the design and operation of PC cards. PC cards that conform to the PCMCIA standard are plug-and-play devices, i.e. they can be inserted into the PCMCIA expansion sockets while the computer is powered on. This type of hot insertion does not apply to all PC cards. Refer to the documentation that came with your PC card for detailed information on insertion and operation of PC cards.

Please refer to *Figure 4-5* and the following instructions for inserting and ejecting a PCMCIA card:

1 .Some PCMCIA cards do not support hot-plugging. Refer to your PCMCIA card's manual for verification. If hot-plugging is not supported, save your data and turn off the Notebook before inserting the PCMCIA card.

2.Hold the PCMCIA card with the arrow side up and the connector side toward the socket.

3.Align the card connectors with the appropriate socket and carefully slide the card into the socket until it locks into place. The upper socket is labeled *slot 1,* and the lower socket labeled *slot 0.*

4.Locate the two PCMCIA eject switches. The eject buttons are located on either side of the PCMCIA socket. Note that there are two eject buttons, one per slot.

[LM 4-8]

5.To remove a PC card simply push the respective eject button. The upper switch will eject a Type 11 PCMCIA card from the upper socket. The lower switch will eject a Type 11 card from the lower socket or a Type III PCMCIA card from the socket.

6. Remove the card and store it properly.
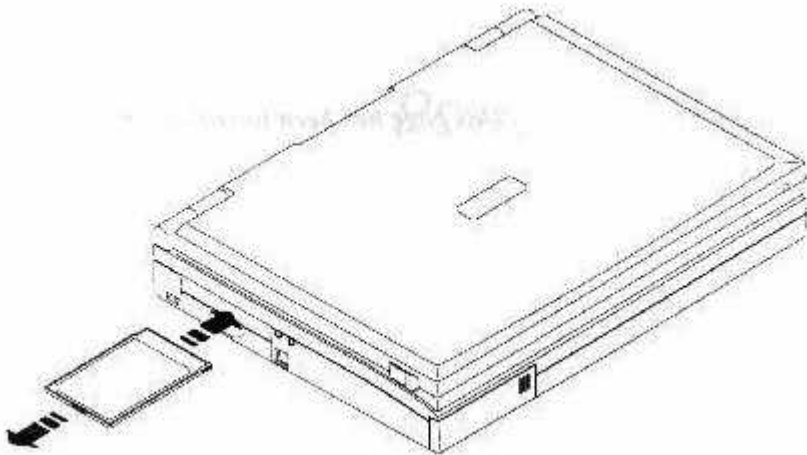
Figure 4-5: Inserting and Ejecting a PCMCIA Card

When inserting a Type III PC card, make sure the connector is inserted in the lower socket. Before ejecting a PC card, ensure that it is not being accessed by the system Memory card users must never change a card's write protect switch while the card is inserted into a PCMCIA socket. For example, if the DOS message "Write protect error writing Drive x" is displayed, the user has to change the write protect switch setting on the memory card. To change the switch setting, (a) eject the card, (b) change the switch setting, and (c) re-insert the card.

Refer to Chapter 7 for detailed information on how to install the PCMCIA utility program that came

with your Notebook .

This concludes Chapter 4. The next chapter covers matters related to the Notebook's power system.

[LM 4-9]

CHAPTER 5: POWER SYSTEM

This chapter contains information on the Notebook's power system, including the AC Adapter, the battery system, recharging the battery, and tips for conserving battery power. Also included is a detailed description of power management and each of the power modes.

The power system is comprised of two parts, the AC Adapter and the battery system. The AC Adapter converts AC power from a wall outlet to the DC power required by the computer. There is one pack inserted in the battery housing at the side of the computer, or otherwise called, Bay 1.

In this section we'll go over AC and battery power operation and explain the software power saving features that are built into the computer.

The AC Adapter

The AC Adapter's primary function is to provide power to the computer. We've already seen how to connect it to the computer in Chapter 1. When the Adapter is connected to the computer it provides power as long as it is plugged into an electrical outlet.

[LM 5-1]
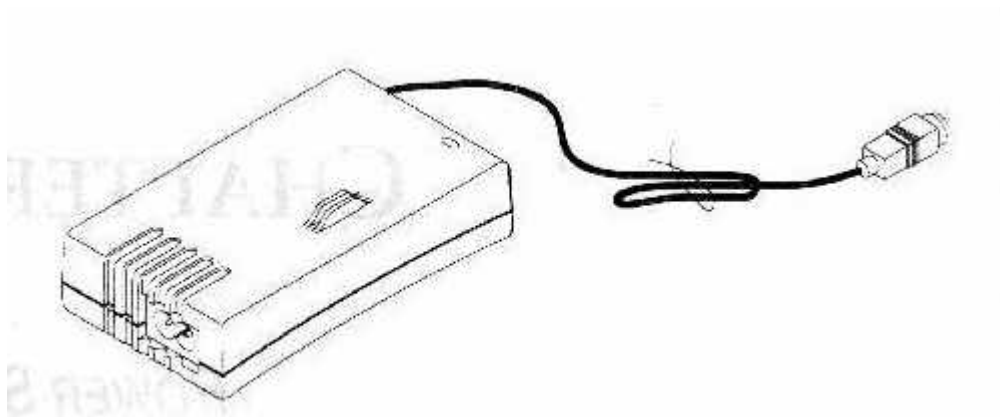
Figure5-1: TheNotebook'sACPowerAdapter

The Adapter has a built-in indicator light that turns on when you plug the Adapter

into a power source. If this light does not come on, the Adapter may not be properly connected, or may not be functioning properly. If the Adapter is not functioning properly, please consult your dealer immediately for support.

The Battery Power System

The Notebook's removable battery pack is found in the battery compartment, Bay

1.	Please see *Figure 1-1* if you are having trouble locating this bay.

A new battery pack should be fully discharged and re-charged three times before being used.

A fully charged pack will provide approximately 3.0 hours of battery life before you have to recharge or replace the battery. Additional battery packs are optional pieces of equipment and can be purchased separately.

Before using the computer on battery power for the first time, check the battery status icon in the System Window display panel to make sure the battery is fully charged. See the section in this chapter labeled *Battery Life Status* for a description and explanation of the different battery icons.

[LM 5-2]

After removing FDD Module the Optional battery pack can be inserted in Bay 2.

Battery pack of Module Bay 1.
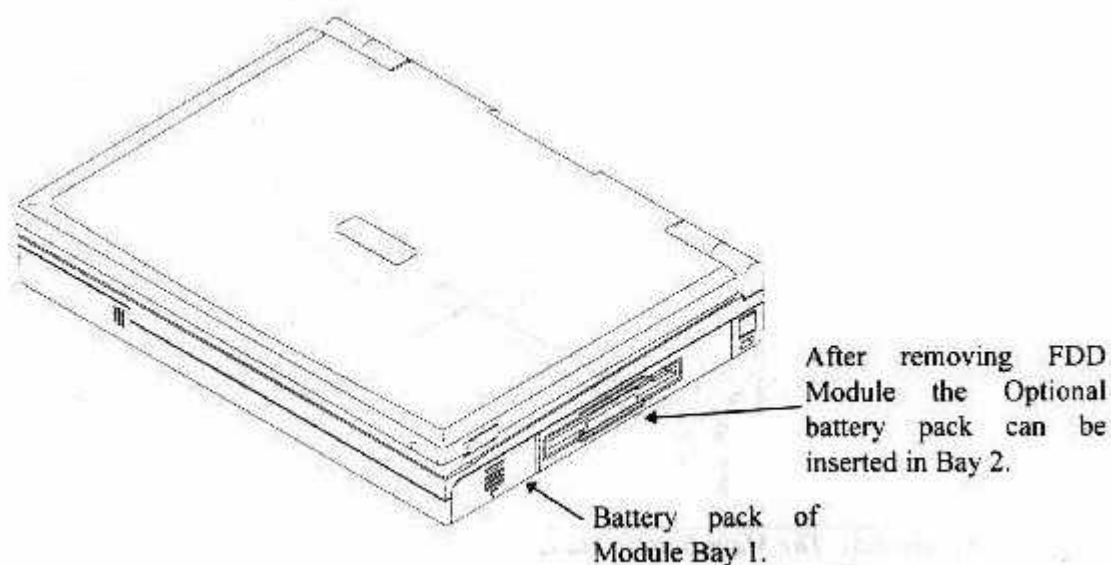
Figure 5-2: *The Notebook's Battery System*

Charging the battery takes about 3.0 hours when the system is off or suspended, or 4.0 hours when the system is on. If possible, always charge the battery completely.

A safety feature automatically stops the charging process after the battery has reached its **full** charging capacity. This prevents dangerous conditions from occurring if there is a fault somewhere in the charging circuitry.

There is another built-in protector preventing the battery from over charging by using a temperature parameter. When the temperature of the battery exceeds 60 Celsius the system will automatically cease charging the battery. When the battery temperature falls below 40 Celsius the system will resume charging the battery.

[LM 5-3]
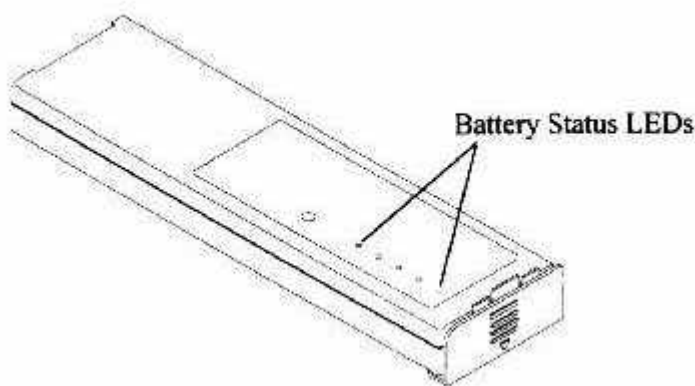
Figure 5-3: The Main Battery Module

Notice on the battery casing there are 5 LEDs. Please refer to *Figure 5-3*. These LEDs indicate how much battery life is remaining. If all five LEDs light, the battery is charged to capacity. Each LED represents approximately 20% battery charge. There is 80% battery life remaining if four LEDs are lit. If no LEDs are lit, the battery is fully discharged.

Removing the Battery Pack

To remove the battery pack from its housing, refer to *Figure 5-4, 5-5* and the following:

1 Turn off the Notebook's power. Never remove a battery module while the Notebook is on.

2.Close the Notebook's cover, ensuring that it snaps into place.

3 .Slide the battery Release latch it in the direction of the arrow shown in *Figure 5-4.*

4.Gently pull the module out of its housing by the latch. Please refer to *Figure 5-5.*

[LM 5-4]
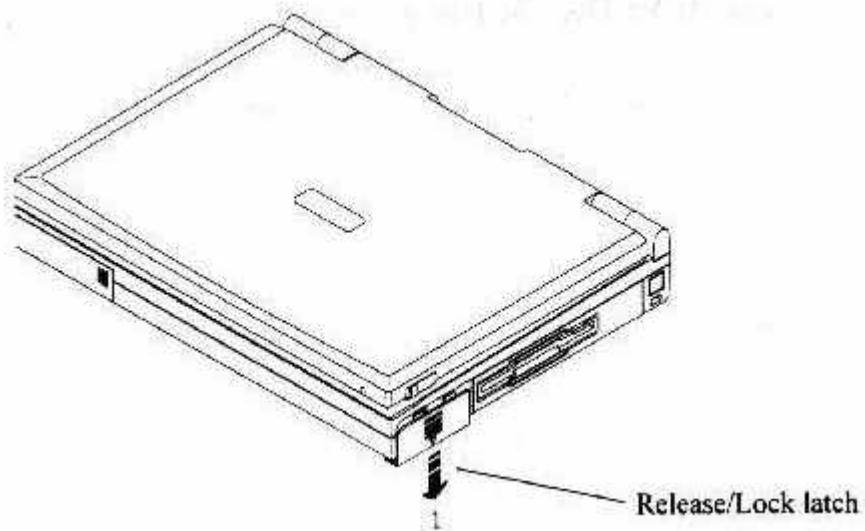
Figure 5-4: Removing the Battery Pack (Step 1)
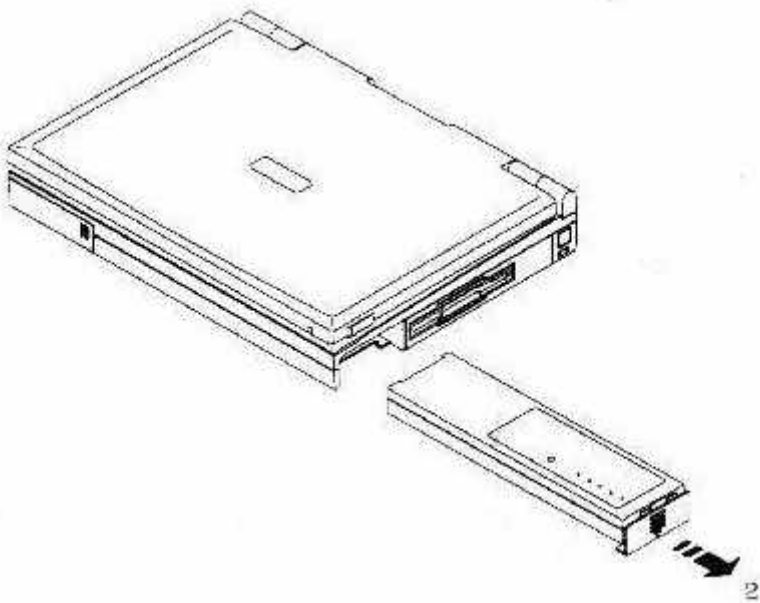
Figure 5-5: Removing the Battery Pack (Step 2)

[LM 5-5]

Inserting the Battery Pack

For inserting the charged battery pack into the Notebook refer to *Figure 5-6,*

Figure 5-7 and the following instructions.

1.The battery slides into the Bay I with the 5 battery charge LEDs facing up.

Please see *Figure 5-3.*

Figure 5-6: Inserting the Battery Pack (Step 1)

2.Slide the battery into the Bay I housing.

3 .When the battery has been placed properly in its seat, you should hear it click into place.

4.Slide the Lock/Release latch to its locked position. Please refer to *Figure 5-7.* The Lock/Release latch will also click into place so that the module rests flush with the side panel of the Notebook.

[LM 5-6]
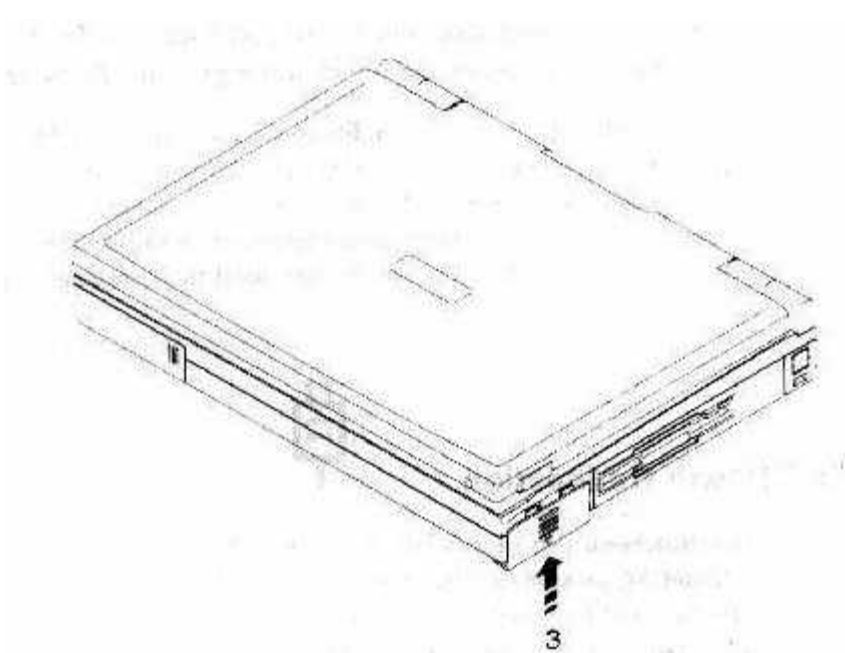
Figure 5-7. Inserting the Banery Pack (Step 2)

Automatic Battery Pack Charging Function

There are two ways to charge a battery pack. One is by the aid of the AC Adapter, and the other is by using the optional Battery Pack Charger. This chapter will focus on recharging the battery using the AC Adapter. Recharging the battery by way of the external battery charger will be covered in Chapter 6.

When running the Notebook off AC power, the inserted battery pack will automatically be recharged while you are working on your Notebook. Two charge speeds are supported. When the computer is turned off or in the suspended mode the charge time is about 3.0 hours, otherwise the charge time is approximately 4.0 hours.

When the AC Adapter is plugged in, the main battery will always be the first to@ receive a charging. After being charged to capacity, the secondary battery, assuming it is installed, will then be charged.

[LM 5-7]

If the Notebook is not being charged by AC power, the secondary battery, assuming one is installed, will be the first battery to be discharged. After the second battery runs down, the system will begin using the main battery.

If an over 60'C temperature condition occurs while charging the main battery, the process will be stopped. The system will then search for a secondary battery pack, and if located, will begin to charge it. Once the secondary battery charging process commences, even if the main battery temperature falls below 40'C, the system will not switch to charging the main battery until the secondary battery is completely charged.

AC Power Connection

The Notebook can be run off AC current by connecting the AC Adapter to the external AC jack on the Notebook. In this connection mode, the inserted battery or batteries will be simultaneously charged. Please refer to the previous section for information about automatic battery charging. To make an external AC connection, please refer to the following instructions.
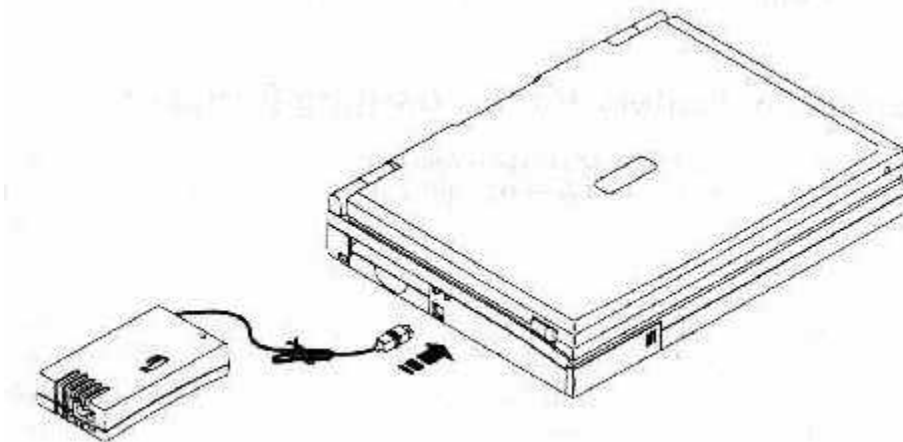
Figure 5-8: Connecting the AC *Adapter to the Notebook's ACport*

1.Insert the end of the AC Adapter output cable into the Notebook's AC port.

Please refer to *Figure 5-8* if you are having difficulty locating this port. Do not force a connection.

[LM 5-8]

2.Connect the power cable to the port on the AC Adapter module. This port is shaped like a figure eight with two pins protruding from it. Please refer to *Figure 5-9.* Line up the pins in the port with the holes in the connector and insert the cable into the port. Do not attempt to force a connection.

3 .Plug the Notebook into its power source and press the ON button. If the Notebook does not power up, check the AC Adapter to the Notebook connections. If the Notebook still does not power up, please refer to *Appendix A, Troubleshooting.*

4.Push & Hold the ON-OFF Button for more than I second to turn off the

computer.

The best power source which you can connect any computer device to is a UPS (uninterruptable power supply). A UPS protects your system against electrical surges as well as protecting your data during a sudden loss **of** *power. Your Notebook dealer will be able to provide you specifics as far as the price andperformance* **of** *different brands* **of** *UPS.*
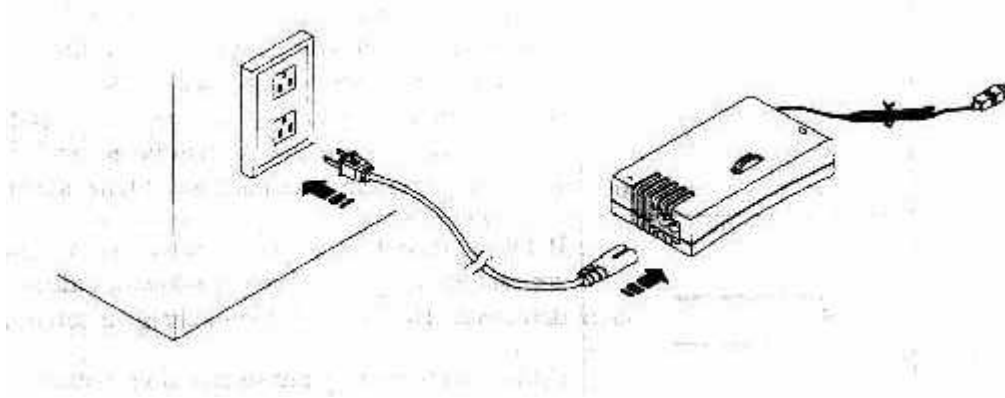
Figure5-9:TheACAdapterConnection

Using Battery Power

The battery system will provide approximately 3.0 hours of power to the Notebook when Power Management is disabled. This **figure** will vary depending on how you use the power saving features, your general work habits, and the type of CPU and

[LM 5-9]

LCD which your Notebook has. We recommend you use the AC Adapter as often as possible to conserve battery power.

The System Window will indicate the status of the battery pack when you are using battery power.

Battery Life Status

Please refer to the following table for a complete description of each battery icon.

Battery Status Icon	System Status Description
Battery Life Status ◆▮▮▮▮▮▮▮▮▮	Notice there are ten vertical lines in the battery icon. Each line indicates approximately 10% battery life. If all ten lines are showing, this indicates that the battery possesses full battery life, 100%. Nine vertical lines indicate approximately 90% battery life remaining. When there is only one vertical line, approximately 10% battery life remaining, this is referred to as low battery state.

	At this time there will be approximately 10-20 minutes of battery power left. When there are no vertical lines showing, the battery has entered the critically low state. The system beep will begin to sound, reminding you to save your data to HDD or floppy. Press [Fn + End] to disable the system beep. Failure to save your data now could result in a serious loss of time and effort.
	If the Notebook is being operated on AC power and this icon appears in the system status window, it indicates that the battery is defective. The system will not charge a defective battery. If the Notebook is being operated on battery power and this icon appears in the system status window, it indicates there is very little battery life remaining. Begin backing up your data on HDD or FDD. If the Notebook is being operated on battery power and this icon appears "blinking" in the system status window, it indicates the battery has entered the critically low state. Save your work, replace the battery with a fully charged one or if available use AC power.

Battery Status Icon	System Status Description
	The AC power is flowing to the Notebook, however, the battery is not being charged. This is an over-temperature protection feature for batteries. The system will not charge the battery under the following conditions: The battery temperature is over 40°C when the system begins to charge the battery. While charging the battery, the battery temperature exceeds 60°C. In this condition, the charging process stop until the battery temperature falls below 40°C; it will then begin charging again.
	The gas gauge icons rotate when the battery is charging.

Low Battery Activity

When the battery has entered critical battery state, the system will begin to beep,

prompting you to save your data. Failure to save at this time may result in data

loss.

To extend battery power, we recommend you make full use of the Notebook's built-in power saving features. Please see Chapter 2 for a complete discussion of the Notebook's power saving features.

Use the [Fn + End] hot key combination to turn off the system beep.

Small Battery for Real Time Clock

There is a small built-in battery pack that supplies power to the system in order to maintain certain system information while the power is off.

[LM 5-11]

Never remove the battery pack while the power is on as this may result in data loss when the system loses power.

Power Management Habits

Vv'hile operating the Notebook on battery power, it is important to develop good power saving habits to maximize battery life. Although the Notebook provides automatic power saving features that can be enabled, you can still improve on them by keeping power conservation in mind.

The AC Adapter

The most obvious way to conserve battery power is to avoid using the battery when there is an available AC power source. The AC Adapter is lightweight and compact, so it is very convenient to bring while traveling. By using the AC Adapter as much as possible, you can ensure you will have a charged battery whenever you really need it.

The Suspend/Resume Feature

The Suspend/Resume is one of the Notebook's most useful non-automatic features. If you need to temporarily step away from the computer, simply press the hot key FN+ESC to put the computer into its maximum power saving mode while maintaining your work. Vvrhen you return, just press any key to restore the system to the point where you stopped.

Screen Brightness

The brighter the LCD display screen is the more electricity it requires. Avoid setting the screen brightness level higher than necessary to extend the duration of battery power.

The Serial Ports

The computer has one serial port which draws some power if *Enabled,* even though no serial device is being used with the computer. If you are not using a serial device, you can turn the COM port off by using the BIOS program to conserve battery power. Please see Chapter 2 for a complete discussion on enabling and disabling the Notebook's ports.

[LM 5-12]

The Floppy Disk Drive

The floppy disk drive consumes a substantial amount of battery power. Use the FDD as little as possible when you are operating the computer on battery power.

Power Management Modes

The computer has a number of automatic or adjustable power conservation features which you can use to maximize the duration of the battery's life. You can control many of these features through the Power menu in the Setup (BIOS) program. Refer to Chapter 2 for a detailed description of the BIOS Setup program.

The computer is made up of electronic components, all of which consume electricity to operate. Yet, some components consume much more than others. The power management features are designed to conserve as much electricity as possible by putting these components into a low power consumption mode as often as possible. These low power modes are referred to as Standby Timeout and Suspend Timeout.

Standby Timeout Mode

In this mode the peripheral components are put in their lowest active states **in** addition to reducing the CPU speed. These include the hard disk and the screen back light. The Notebook enters Standby Timeout mode when the system remains idle for a specified amount of time. This time value can be set from the Power menu in the BIOS Setup program.

After the system has entered the Standby Timeout mode, to resume normal operation press any key.

Suspend Timeout Mode

There are actually two levels of Suspend: Save to RAM and Save to Disk. Save to RAM saves power by cutting off the power of the CPU and DMA clocks, suspending the math co-processor, turning the video off, and turning off all controllable peripheral devices. To resume normal operation, press the S/R button. Save to Disk provides the greatest power saving capabilities by essentially turning off the system. Save to Disk can be configured by entering the BIOS Setup program's Power menu and moving the selection cell to the Save to Disk Timeout **field.** In this mode, all system logic (except for the battery charger) is turned off. During the Save to Disk mode, the DRAM and video memory are saved to the hard disk and are restored when the system is resumed. To resume normal operation, just press the On/Off power button.

[LM 5-13]

The PHDISK Utility

In order to use the Save to Disk function you must first create a Save to Disk (STD) partition on the Notebook's hard disk. The PHDISK utility is used to create this partition. During the save to Disk operation the system's state is written to this

STDpartition. Follow the instructions listed below to create a STD partition:

1.Run the PHDISK utility by typing PHDISK /CREATE at the DOS prompt. The PHDISK utility automatically allocates a sufficient amount of disk space required for the STD partition based on the current system requirements.

2.The amount of disk space required for the Save to Disk operation and the amount of storage space available on the selected drive are displayed before the space is allocated.

3.Once the STD partition is created, you must run the MSDOS FDISK utility to partition the remaining space on the hard disk. Refer to the MSDOS user's manual for instructions on how to run the FDISK utility.

4.After the hard disk has been partitioned, format the hard disk. Refer to the MSDOS user's manual for instructions on how to format the hard disk.

You must run the PHDISK utility before partitioning and formatting the hard disk. As this procedure destroys any data on the hard disk, the STD partition should be created before Installing any DOS applications, programs, or other software on the hard disk. If you should later decide to upgrade the Notebook's system memory, you may have to run the PHDISK utility again if the additional memory requires a larger STD partition than the one currently in use.

How the System Suspends

There are many ways to enter Suspend mode. One method of suspending is by specifying a time out period in the Suspend to RAM Timeout or the Save to Disk Timeout fields in the Power menu of the Setup program. Like the Standby Timeout field, the Suspend to RAM Timeout and the Save to Disk Timeout fields enable you to specify a time out period that must elapse before the system automatically suspends. If Standby is enabled, a suspend is triggered when the sum of the timeouts specified for each of the fields is achieved. If Standby is not enabled, the system suspends based on the time out setting specified in the Suspend to RAM Timeout or the Save to Disk Timeout fields.

[LM 5-14]

A Suspend Example

The time out settings for Standby and Suspend to RAM Timeout or the Save to Disk Timeout specify the amount of time the system must be inactive before the next power management level is enabled. The example below demonstrates this functionality. If the Hard Disk Timeout is set to I minute, Standby Timeout is set to 2 minutes, and Suspend to RAM Timeout or the Save to Disk Timeout is set to 5 minutes, then the following power management events take place:

1 . After I minute of system inactivity, the hard disk spins down.

2.After I additional minute (a total of 2 minutes of inactivity), the system enters Standby.

3.After 5 additional minutes in Standby, the system Suspends to RAM or Saves to Disk, depending upon the settings made in the Power Menu of the BIOS program.

After the system has suspended, operation can be returned (resumed) to the point in your application where it was suspended. See "How to Resume" for a complete list of resume conditions.

How to Suspend

The system can be suspended in the following ways:

System enters Auto Suspend. This is enabled by setting a time out period for the Suspend Timeout field in the Power menu. This time out period is the amount of idle time that the system allows before a Suspend is initiated.
Press the hot key combination [Fn + Esc] to Suspend to RAM
Press the hot key combination [Fn + A] to Save to Disk
Automatically activating the Suspend function by closing the lid of the Notebook.
The battery reaches a critically low power level.

[LM 5-15]

The Chain of Suspend Events

If the system enters Suspend mode from any of the above options, it enters the best power-saving Suspend mode that is supported by the system. When the system suspends, the following events take place:

A warning beep sounds

The Suspend indicator in the System Status Window is turned on

The video screen is turned off

CPU, DMA clocks, and the math co-processor are powered down

All controllable peripheral devices are turned off

All system logic (except for the system wakeup circuitry and battery charger) is turned off

The DRAM and video memory are saved to the hard disk (Save to Disk only)

If the system is left in Suspend to memory (RAM) mode long enough to consume all battery power, then the Suspend indicator goes out and the current contents of the computer's memory are lost. The system cannot resume until the battery is recharged or the Notebook is connected to AC power.

How to Resume

Pressing any key causes the system to resume operation after entering Suspend mode. Resuming returns the system's operation to the point in your application where the suspend was initiated. This does not mean, however, that all devices are powered up. When the system resumes, the following events occur:

DRAM refresh memory returns the system to the application that was running before the Suspend operation;

The video is turned on;

a The COM ports are enabled.

Then, each device is powered on when it is requested for use by the system.

Controllable Features

The Power menu in the BIOS Setup program allows you to specify the amount of inactivity time that must elapse before power saving features are activated. The

interval is set usin- the BIOS Setup program controls as described in Chapter 2. The available ranges are as follows:

[LM 5-16]

Setting an interval to the disabled state, prevents the feature from activating. You can customize these settings to suit your work habits. Remember that the longer the interval, the less power will be conserved.

Reactivating From Power Saving Modes

After entering one of the power saving modes, the system will return to normal operation in various ways depending on current system status. All of this is transparent to the user. From the user's point of view the computer reactivates almost as soon as you start to use it again .

Power Management Summary

The following table summarizes the Notebook's power-saving features:

[LM 5-17]

The APM Interface

In addition to the power saving features built into the resident BIOS System Configuration Utility, your Notebook also supports the Intel-Microsoft Advanced Power Management (APM) version 1.1 (or higher) specification. APM is a cooperative interface that enhances the Notebook's built-in power management features by providing one of the most accurate schemes for detecting true idle. This allows APM implementation to put the CPU in a lower power state with no loss in user performance. If APM is installed and properly configured, and power management is enabled in the Setup program, APM functions in the following manner:

Takes over power management from system Setup Program

Constantly monitors all system activity to provide one of the most accurate detection schemes for determining true idle under DOS, Windows, Windows 95 and OS/2

Accounts for operating system inactivity and power demands

Accounts for application inactivity and power demands

Allows application programs, DOS and Setup Program to share power management features to ensure more efficient use of power

Determines when power-saving features should be activated

Operates transparent to the user (behind the scenes)

[LM 5-18]

While you are running an APM aware application, APM will detect any system inactivity. If APM detects that either the operating system or the application is waiting for input (or is in some other idle state), APM will reduce the CPU to minimum speed. Once high speed is required acain, APM will increase the CPU

to maximum speed. With APM constantly monitoring all system activity,

accounting for theNotebook's power consumption, and controlling all power-

saving features, you will realize significant additional power savings.

If power management is disabled in the BIOS Setup program, APM will also be disabled regardless of its settings. Once you have enabled the APM interface, some settin-s made in the BIOS Setup pro-ram may be overridden by APM.

Refer to your DOS or Windows manual for a more thorough explanation of the APM interface and its features.

This concludes this chapter on the Notebook's power system. Chapter 6 provides instructions for inserting memory expansion modules and connecting the Notebook a proprietary 1/0 Replicator and Docking Station.

[LM 5-19]

LM Chapter 6--Expansion

CHAPTER 6: EXPANSION OPTIONS

This chapter describes the optional equipment that can be added to the basic Notebook system. We use the term expansion here to signify items that are installed inside the computer rather than standard equipment such as a printer that can be connected to the computer's I/O ports. For example:

You can add more system memory to improve performance.

Putting the Notebook on a docking station will expand its versatility, making it a suitable replacement for your Desktop PC.

This section also covers the optional modules that can be inserted in the bay located on the right side of the notebook.

System Memory Expansion

The Notebook comes with 8MB of on-board system memory. While this memory is sufficient for most circumstances, you may find that in some cases additional memory is required. This is particularly true as more and more application programs are designed to run under Windows. Running two Windows programs at once may require additional system memory. The Notebook provides an optional memory expansion slot for installing up to two memory cards. These expansion memory cards can be purchased from your dealer.

[LM 6-1]

Expansion Memory Card Types

Expansion memory cards are available in three sizes: 4MB, 8MB, and 16MB. Refer to the following table and diagram.

Memory Configuration Table

A number of memory configurations for your Notebook computer are possible. Refer to the following table to determine your system's memory configuration with these cards installed. As far as your actions as a user is concerned, Slot A and Slot B are the same and exchangeable.

Installing Memory Cards

Your computer chips, especially RAM (random access memory), are extremely static-sensitive. Static electricity will permanently damage your chips. It is therefore important to discharge the static

electricity from your body before installing the memory module. Discharge your body's electricity by touching the metal shielding around the connectors on the rear of the notebook computer. Typical grounds are a radiator or a printer case when your unit is plugged in. If you regularly work on your notebook, it may be beneficial to purchase an anti-static mat or wrist band. Contact your authorized dealer for details on where anti-static devices can be purchased.

[LM 6-2]

You may find it helpful to refer to *Figure 6-1 and Figure 6-2* while reading the following directions.

The memory door is located on the underside of the notebook. it is held in

Please see *Figure 6-1.* Remove the screws and the plastic covering to reveal the memory DIMM (Dua slots.

2.After the memory door has been opened, the memory card can be installed. Insert the DIMM at a 450 angle into its slot. Gently, but firmly push the

DIMM until it locks in place and lays horizontally in its slot. Please refer to *Figure 6-2.*

3.Now replace the memory door in the reverse order in which it was removed.
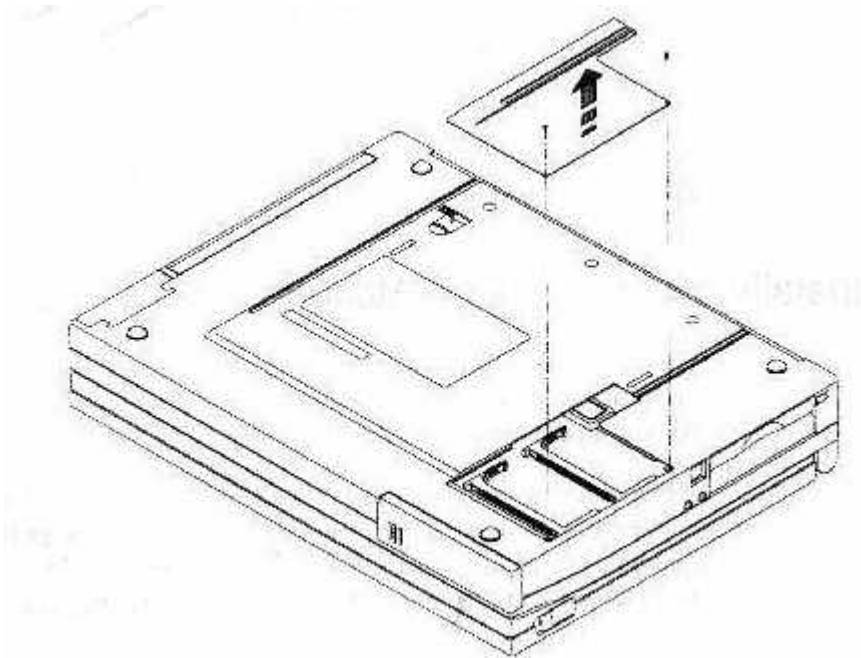
Figure 6-1. Removing the Memory Door

[LM 6-3]
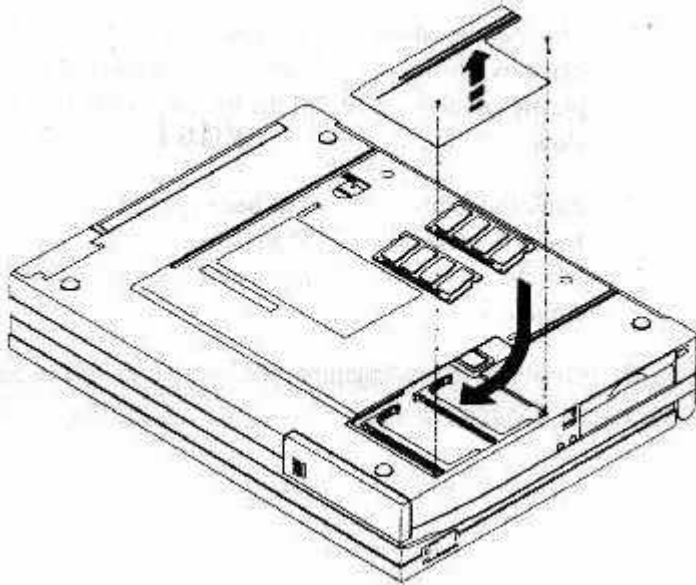
Figure 6-2: Installing the Memory Card

Installing and Removing Modules

Your Notebook has the added feature of being capable of supporting three optional hardware modules. The addition of these modules increases your Notebook's already superb versatility and performance.

All modules are installed in the Notebook's bay 2 port. The battery pack is in bay 1. Most likely your FDD is in bay 2. Before you install any of the optional modules, you must remove the FDD from the bay. The procedure for removing the FDD or removing any of the modules from the bay is essentially the same.

[LM 6-4]

Removing the FDD and Optional Modules

For step by step information on removing any one of the modules from bay 2 of the Notebook, please refer to the following set of instructions.

1.Ensure that the Notebook is in the power-off mode before removing the FDD or any module. Failure to do so may cause damage to the electronics of your Notebook or to the module.

2. Disconnect any peripherals from the Notebook and close its lid.
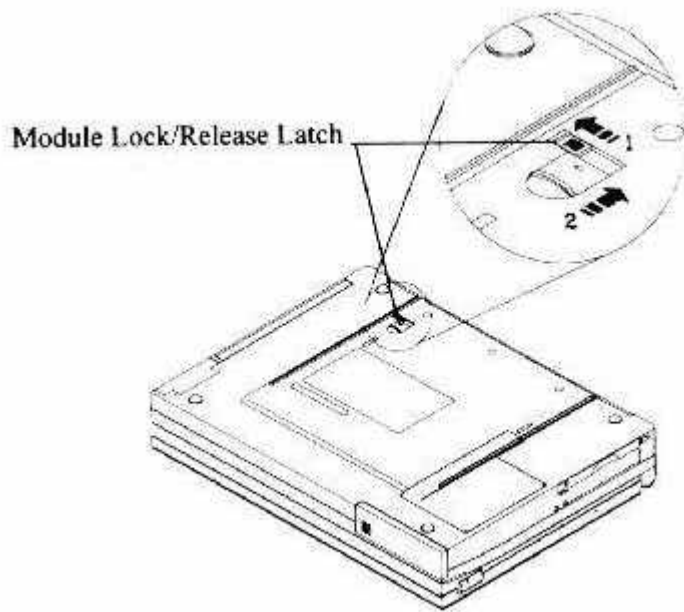

Figure 6-3: Removing the FDD Modulefrom Bay 2

3.Locate the Module Lock/Release latch on the side panel of the Notebook. Please refer to *Figure 6-3.*

4.Slide the Module Lock/Release latch out so that it is perpendicular to the side panel of the Notebook.

5.Push the latch in towards the Notebook. This will unlock the FDD module from the its original position. Slide the module out of its housing.

[LM 6-5]

Installing FDD and Optional Modules

For step by step infon-nation on installing any one of the modules into bay 2 of the Notebook, please refer to the following:

Ensurethat the Notebook is in the power-off mode before installing a module. Failure to do so may cause damage to the electronics of your Notebook computer or to the module.
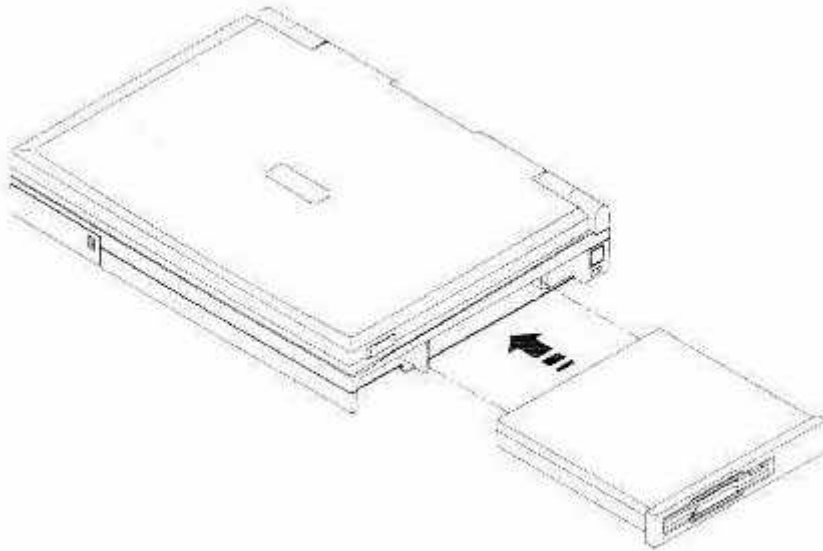
Figure 6-4: Inserting the FDD Module into Bay 2

2.The top side of the module is smooth and without markings. The bottom side of the adapter will align with the bottom side of the Notebook as shown in *Figure 6-4.*

3.Locate bay 2 on the Notebook. This is the bay in which your removable floppy disk drive is located. Remove the FDD from the Notebook's bay. Refer to section above on Removing Modules for steps on taking the FDD out of its bay.

[LM 6-6]

4.Slide the module into its bay until you hear it lock into place. Pivot the Module Lock/Release latch back to its original position. Otherwise you risk the chance of accidentally snapping off the latch.

5.Turn the Notebook on. The Notebook will automatically recognize the presence of the module which was just inserted.

Optional Modules

The Battery Module

The optional battery module allows for extended battery power when you are on the

road. The Notebook's battery module will run out of power after approximately

3.0hours of use. An extra battery module allows you more flexibility -in your away from the office schedule, adding an additional 3.0 hours to the computer's operational time.

For information on how to remove the battery from the Notebook in order to replace it with the charged optional module please see *Figure 5-3* of Chapter 5.

FDD Drive Module

The optional FDD module's architecture is of the same design as the FDD which comes with the Notebook. Please refer to the section in Chapter I labeled *Features* for more information.

The CD-ROM Module

This optional piece of equipment provides you with the hardware basics to turn your Notebook computer into a fully functioning Multi-media computer. Beyond its audio capabilities, since many software packages are coming out solely on CDROM, the addition of this module gives the user mote choices in the purchase of software applications.

[LM 6-7]

In recent years, CD-ROMs have become increasingly popular as a mass storage media. One reason is clearly their large storage capacity; CD-ROM disks can hold up to 635MB of data. And because they are randomly accessible, data can be easily organized for quick retrieval during a search. CD-ROMs can also store a large variety of information, including audio and video data, as well as text files and programs.

PRECAUTIONS To FOLLOW WHEN HANDLING CD-ROM Discs

Always hold the disc by the edges, avoid touching the surface of the disc.
Use a clean, dry, cloth to remove dust, smudges, or fingerprints. Wipe from the center outward.
Do not write on the surface of the disc
Extremes in temperature may damage discs. Store discs in a cool dry place.
Do not use benzene, thinners, or cleaners
Do not bend or drop the discs
Do not place objects on top of discs

LOADING A DISC

To play a CD disc, follow the instructions listed below.

I . Press the eject button. The tray ejects from the drive.

2.Place the disc into the tray with the disc's label facing up.

3 .Press the eject button again. The tray is retrieved into the drive.

Do not insert anyforeign objects into **the** *disc tray. Do notforce the* **tray** *to open or close manually. When not in use, keep* **the** *tray closed to prevent dust or dirt ftom entering the drive unit. Some CD-ROM drives* **are** *equipped with an Audio CD play button. Press* **this** *button to play music CDs*

The procedure for installing and removing the CD-ROM is practically the same as it is for the FDD module. The difference is that before using your CD-ROM for the first time you must install the CD-ROM device driver found on the diskette which came in your CD-ROM optional module package.

[LM 6-8]

Installing Device Drivers

To install the CD-ROM device driver, please refer to the following:

 1 -If You currently have a application file open, such as a Word file in Windows, save your data and close the application. Insert the device the Notebook's floppy disk drive. Recall that the FDD is drive A.

2.From within Windows, open the Control Panel by double-clicking on the icon. Select the Device Driver icon.

*3.*A dialogue box will appear, called the List of Drivers box. Click on the Add button and select the line which reads Unlisted or Updated Driver and press the OK button.

4.The Install Driver dialogue box will appear. Type in the letter A: and press <Enter>. Select the Device driver from the list and press OK.

*5.*Dialogue boxes will lead you through the remainder of the installation process. If you require additional assistance, please refer to your Windows help file.

6.When you have completed the CD-ROM device driver installation, press the Restart Now button. Your system will reboot allowing the driver to take immediate effect.

When the system reboots, all unsaved data will be lost.

[LM 6-9]

Removing Device Drivers

At some time in the future you may want to remove a device driver from your system which you are no longer using. To accomplish this, please refer to the following steps:

1 .If you currently have a application file open, such as a Word file in Windows, save your data and close the application. Enter the Control Panel and select the Drivers icon.

2.Now locate the driver which you wish to remove and select it. Choose the Remove button and a dialo-ue box will appear prompting you to confin-n.

3.After being certain that this is the driver which you wish to remove, select the Yes button. You have now successfully removed the driver from the list.

4.Choose the Close button. A dialo-ue box will appear, asking if you wish to Restart Windows. Choose the Restart Now button. This will cause your system to reboot, allowing the driver deletion to take immediate effect.

When the system reboots,* all *unsaved data will be lost.

Fax/Modem Card (optional)

The optional Fax/Modem card converts the Notebook into your own personal electronic Input/Output message service, connect your Notebook to the Internet and much more. Your incoming callers have three choices when the Fax/Data module picks up. They can leave a message in one of the individual mail boxes, access the operator, or connect to the fax/ data modem.

Contact your Notebook dealer for details about purchasing and installing a fax/modem card. If your Notebook was purchased with a Fax/Modem card installed, please refer to the following instruction for assistance in setting up your new Fax/Modem.

[LM 6-10]

Fax/Modem setup

1 . The Fax/Modem uses the SuperVoice software series. The application setup disks and the software user's ouide manual should accompany the Fax/ Modem module upon purchase. Contact your dealer if you are missing either ofthese.

2.You must run the software setup program and save it to the Notebook's hard disk drive before you can use the module. Refer to the software's owner manual for complete instructions on software setup.

3.There is one phonejack on the Fax/Modem module. The phonejack is for a regular phone line. Future models will support cellular phone hook ups.

4.After you have installed the modem, and saved the setup application to your hard disk, then attach the phone lines.

Turn on the Notebook. Your Fax/Modem module should be ready for use. If after referencing the software manual, you are still having difficulties **in** getting the module to function, contact your Fax/Modem module dealer

MPEG Card (optional)

MPEG cards provide for an abundance of multi-media capabilities. With minimal additional cost, the optional MPEG card will improve system performance and data throughput by off-loading computer intensive portions of the decoding process. As a PCI bus master, the optional MPEG card saves constant taxing of the Notebook's CPU during frame reformat and transferring to the graphics subsystem.

The optional MPEG card have the following features:

MPEG- I decoding
Advanced audio and video processing capabilities
A PCI bus master
Direct interfacing to the main memory and graphics subsystem.
CCA (Collaborative Compression Architecture) an exclusive acceleration technique in which the host processor handles audio and video preprocessino as well as synchronization.
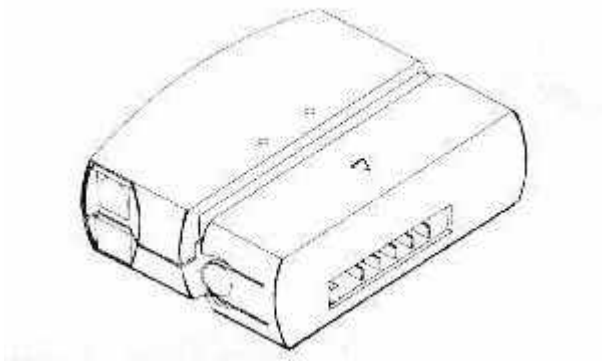
[LM 6-11]

Configurability with a 512K (256K by 16) DRAM chip for frame storage (required)
Dual-stream support with additional external DRAM (optional)
A free running timer with programmable rate

Consult your Notebook dealer for detailed specifications on the optional MPEG card.

The External Battery Charger

Figure 6-5: External Battery Charger

For instructions on how to use the external battery charger, please refer to the following steps.

I .Before connecting the AC Adapter power cord to the external battery charger, ensure that the AC cable is unplugged from its power source.

2.There are two tabs located on either side of the Battery Charger unit. Push these tabs in the direction of the arrows shown in *Figure 6-6,* Diagram A. While gripping the sides of the unit, slide back its casing to reveal the battery connecting port. Please refer to *Figure 6-6,* Diagram B.

[LM 6-12]

3.Insert the AC Adapter's connector head into the corresponding port on the battery charger module. Please see *Figure 6-7.*

4.Connect the battery you wish to have charged to the Battery Charger's port. Please see *Figure 6- 7.*

5.Plug the AC Adapter power cord into a power source, such as an extension cord with a built-in circuit breaker or a wall outlet.

Diagram A   Diagram B
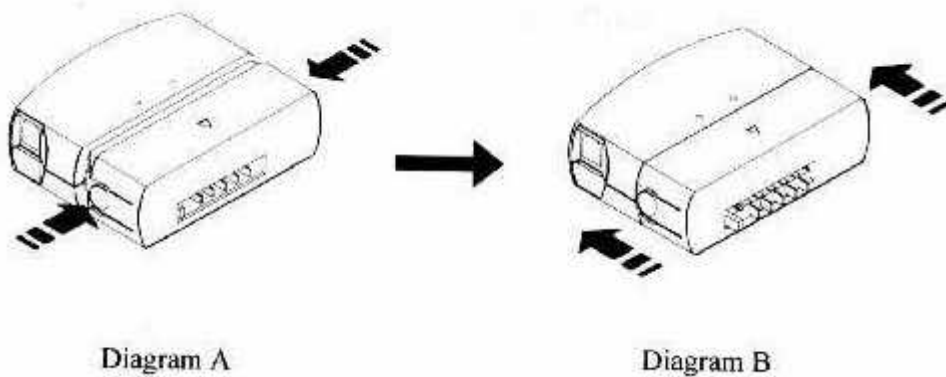
Figure 6-6: Connecting the External Battery Charger to AC Power supply (step 1)

6.The LED on the battery charger should turn on, indicating that the battery is being charged. If it does not light, there is something wrong. If you are using an extension cord, make sure that cord is not damaged. Also ensure that the battery has not been placed incorrectly into the charger.

7.The battery will take approximately 3.0 hours to charge. After the battery has been fully charged the external charger will automatically cease feeding current to the battery.

[LM 6-13]
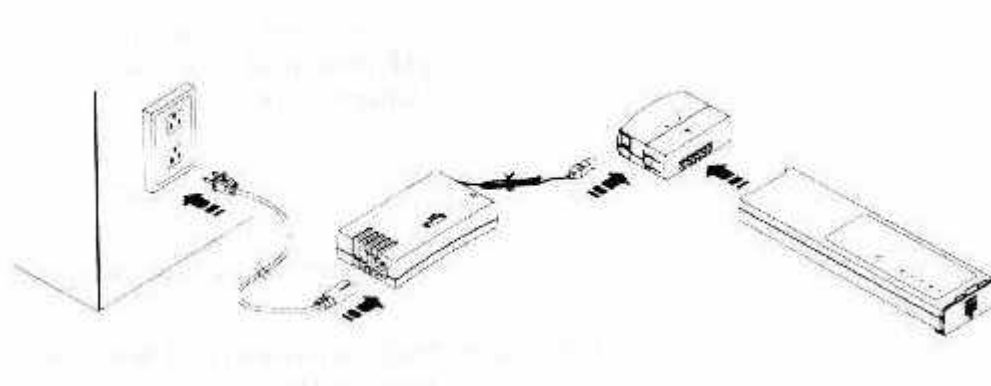
Figure 6-7. Connecting the External Battery Charger to ACpower supply (Step

2)

The Car Adapter

The external battery charger provides for extended versatility as you can use it while on the road. The battery charger comes equipped with an adapter which plugs into your car lighter. In order to take advantage of this flexible feature, follow the same procedures as stated above, except substitute the car lighter adapter cord for the AC power cord. Please

refer to *Figure 6-8.*
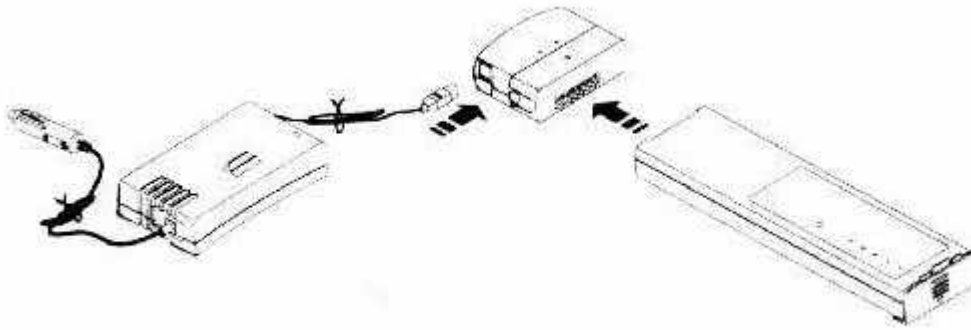

Figure 6-8: Using the Car Lighter Adapter

[LM 6-14]

Removing and Installing HDD Modules

Eventually you may find that your Notebook's HDD space is limiting. The HDD module provides you with additional hard disk space. The installation of additional HDD modules is relatively simple. Please refer to **Figure 6-9** and **Figure 6-10.**

To remove and install HDD modules, please refer to **Figure 6-9, Figure 6-10** and

thefollowing directions.

1 .Turn off the Notebook and disconnect the AC cord and any connected peripherals.

2.Locate the HDD module. Slide the module cover in the direction of the arrows shown in step 1 *of* **Figure 6-10.**

3.Remove the module cover in the direction of the arrow shown in step I of **Figure 6-9,** then release two screws from the bottom of notebook shown in step 2 of **Figure 6-9.**

4.Gently lift the metal hook on the **front of** HDD and pull out the HDD unit from its housing in the direction of the arrow shown in step 3 of **Figure 6-10.**

5. Store your HDD module in a safe, dry place away from direct sunlight or heat.
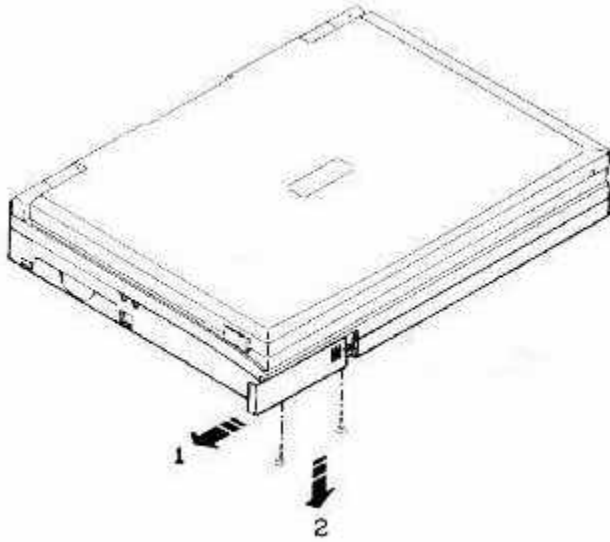
Figure 6-9: Removing the HDD Module (Step 1)

[LM 6-15]
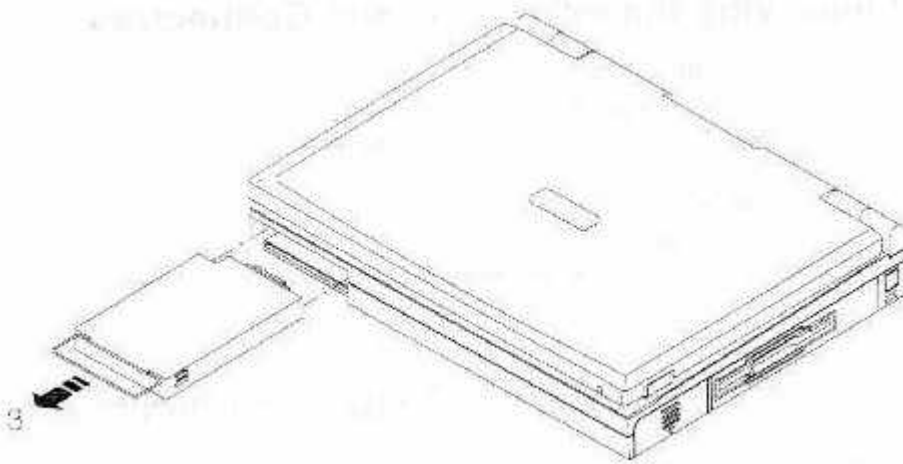
Figure 6-10: Removing the HDD module (Step 2)

No two like modules can be used at the same time. For example, if the Notebook's Bay is currently supporting a FDD (Floppy-Disk Drive) the computer will not recognize the presence of a second FDD inserted into the Module bay on the I/O Replicator. Furthermore, the presence of two FDD may cause a conflict, rendering both of the FDD temporarily useless.

Adding the I/O Replicator

> The I/O Replicator acts as a super-docking station, capable of supporting a specified Notebook. The I/O Replicator is equipped with a bay-door port. This port allows the user to expand the Notebook even ftirther by inserting optional modules directly into the bay, enabling your Notebook computer to ftinction like an IBM compatible XT/AT desk-top computer.
>
> Your new I/O Replicator features the most innovative advances in Notebook personal computing technology. Much consideration has gone into the design of the I/O Replicator in order to meet your requirements for versatility as well as quality.

[LM 6-16]

Identifying the Ports, Bay and Connectors

> Before attempting to connect your Notebook to any modules, peripheral devices, or serial devices, make sure you are familiar with the I/O Replicator's various I/O ports and controls. Please refer to the following diagrams for a detailed labeling.
>
> *Figure 6-11* displays the rear side of the I/O Replicator and labels the locations of the serial and peripheral device ports. *Figure 6-12* pictures the Notebook's I/O Replicator station being properly aligned with the Notebook's I/O port.
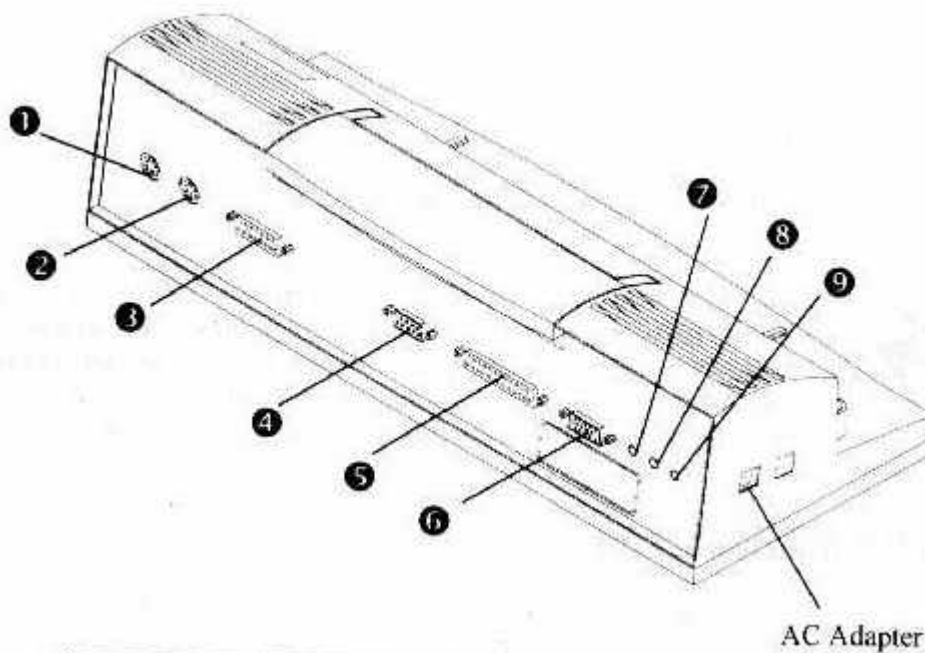
AC Adapter

Figure 6-11: The I/O Replicator's Ports

I . PS/2 Mouse port

     2.Keyboard port

3. Midi port

     4.COM I port

     5.Parallel Device port

     6.Extension Monitor port

     7.Audio-out port

     8.External Mic port

9. CD Audio-in port

[LM 6-17]

The AC Adapter and Peripherals Connection

The AC Adapter port and all peripheral ports are located on the rear side of the I/O Replicator. Please see *Figure 6-11* for a complete port layout. You will want to place the I/O Replicator flat on a desk near a wall outlet or an extension cord with a built-in circuit breaker.

Please see the I/O Replicator's user manual for information on making peripheral connections and/ or installing the six optional modules.

The Notebook to Port Replicator Connection

By inserting your notebook into the Port Replicator, and by connecting peripheral devices (a keyboard, mouse, monitor, printer, etc.) to the Replicator's rear side, the Port Replicator turns your notebook computer into a fully functional desk-top PC. Your notebook can be hot-

plugged into the Port Replicator. This means that you do not have to turn off the notebook before connecting it to the Port Replicator.

Even though you may be able tofit other notebook computers

into the Port Replicator, it is strongly recommended you do not use it with any other notebooks before checking with your authorized service technician. This could result in severe electrical damage to the Replicator andyour notebook.

You may want to refer to *Figure 6-12 and Figure 6-13* as you read these instructions for a visual guide to connecting the notebook to the Port Replicator.

Toconnect your notebook to the Port Replicator observe the following steps

1 .Prepare the Port Replicator by connecting the desired peripheral devices and connecting the Port Replicator to an AC power source.

2.If no peripheral devices are connected to the Notebook, there is no need to

turn off the system since it can be hot-plugged into the Port Replicator. However, it is recommended that you save your data and enter the system into the suspend mode and close the LCD lid.

3.Locate its 240-pin port. It is found on the front left side of the Port Replicator.

Please refer to *Figure 6-12* if you are having trouble locating this port. The rear of the Replicator is designed for peripheral connections.

[LM 6-18]
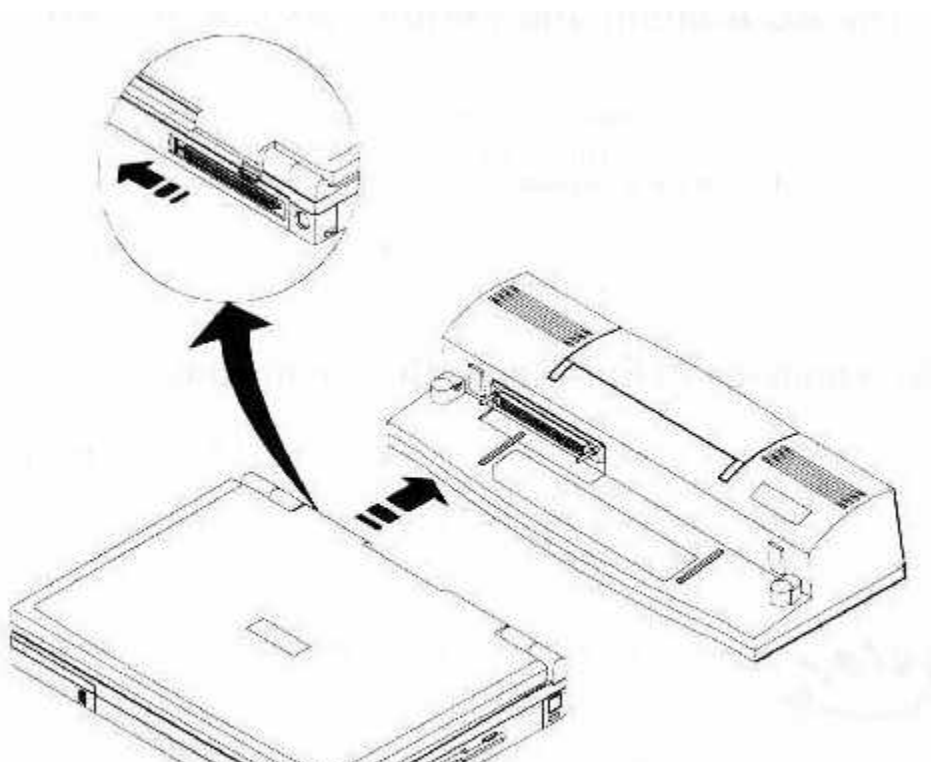
Figure 6.12: Connecting the Notebook to the Port Replicator

> 4.Find the 240-pinned connector on the rear side of the notebook. It is concealed by a plastic door. Slide the door to the left until it locks into its open position. Please refer to *Figure 1-3* .
>
> 5 .Notice that there is one rail on the left of the docking platform and one on the right. These rails correspond with two grooves on the bottom side of the notebook computer. Place the notebook on the Port Replicator's docking platform, aligning the rails with the grooves.
>
> 6.Slide the long rectangular-shaped Release latch in the direction of the arrow shown in *Figure 6-12*. This will unlock the latch allowing the notebook to be connected to the port.

[LM 6-19]

> 7.Gently slide the notebook along the rails on the docking platform until the notebook's 240-pinned connector makes form connection with the 240-pinned port on the Replicator. Forcing a connection between the two can seriously damage either or both the port and the connector. Realign the grooves to the rails and try again.
>
> 8.Once you are confident that you have a firm connection, slide the Release latch back to its original position. This will secure the Locking latch as well as the connection.
>
> 9.Open the notebook's LCD cover and assuming you entered the system into suspend mode in step 2, resume normal operation.

Removing the Notebook from the Port Replicator

> You may want to occasionally refer to the illustration in this section as you read these instructions for a visual guide in removing the notebook from the Port Replicator.
>
> 1.Save your data and enter your notebook into the Suspend mode.
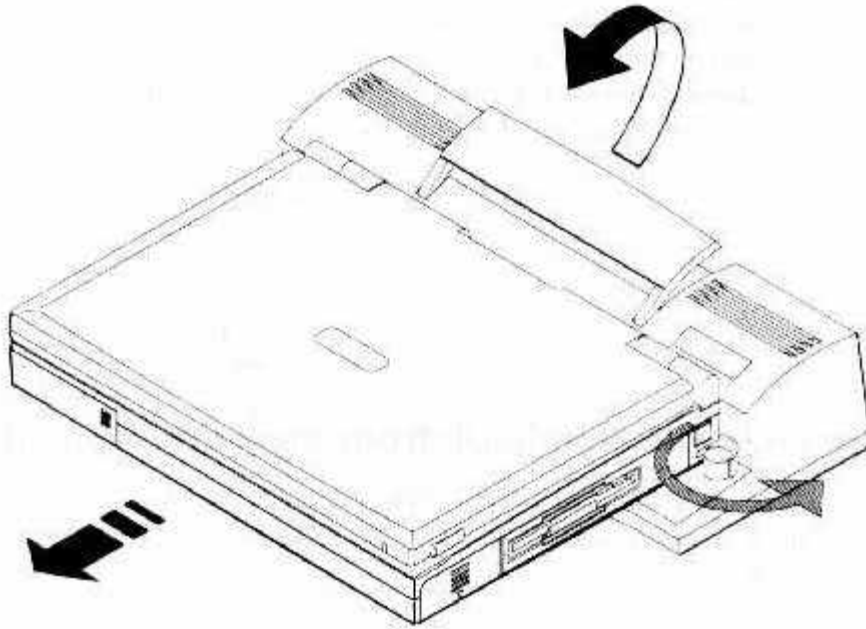>
> 2.Pivot the Release latch in the direction of the arrow shown in *Figure 6-13*.
>
> 3.Lift the Release lever to disengage the connection between the notebook and
>
> the Port Replicator. It is now safe to remove the notebook.

4. Push the Release lever back down to its original position.

[LM 6-20]

Figure 6-13: Removing the Notebook from the I/O Replicator

I/O Replicator Specifications

External Interfaces

One PC/ AT compatible parallel port

One PC/ AT compatible RS232C serial ports

One external VGA monitor connector

One external keyboard connector for PC/ AT compatible keyboard

One external PS2 mouse connector

One MIDI port connector

Three audio connectors (Microphone, Audio-out, CD-in

This concludes Chapter 6. Chapter 7 covers the Notebook's software features.

[LM 6-21]

CHAPTER 7: PCMCIA Devices

Your Notebook comes from the factory with Windows 95 installed. Windows 95 has 32-bit drivers for most PCMCIA cards. If a compatible driver is not available, contact the card's manufacturer. Windows 95 refers to PCMCIA cards as PC Cards.

Windows 95 provides on-line help for configuring and troubleshooting PC Cards. The on-line help can be accessed from the Windows 95 Start menu. The following topics are covered:

Enabling and disabling support for PC Cards

Removing PC Card support

Specifying the number of PC Card slots

Setting up the PC Card socket

Installing support for SRAM memory cards

Displaying the PC Card status indicator

Troubleshooting

Configuring PCMCIA Devices

Windows 9532-bit PC Card (PCMCIA) support uses PnP drivers. In normal operation, Windows 95 automatically configures itself for the installed devices. Refer to the Windows 95 on-line help for infon-nation on configuring your PC Cards

If a device does not have a PnP driver, you will not be able to use 32-bit support. Contact the device manufacturerfor the correct drivers.

The Windows 95PC Card (PCMCIA) wizard allows you to control your PC Card devices. The wizard is accessed from the Windows 95 Control Panel as shown in *Figure 7-1.*
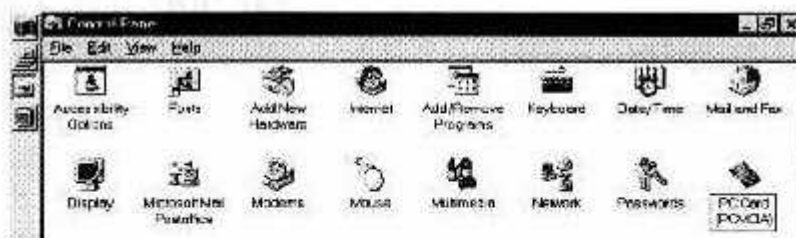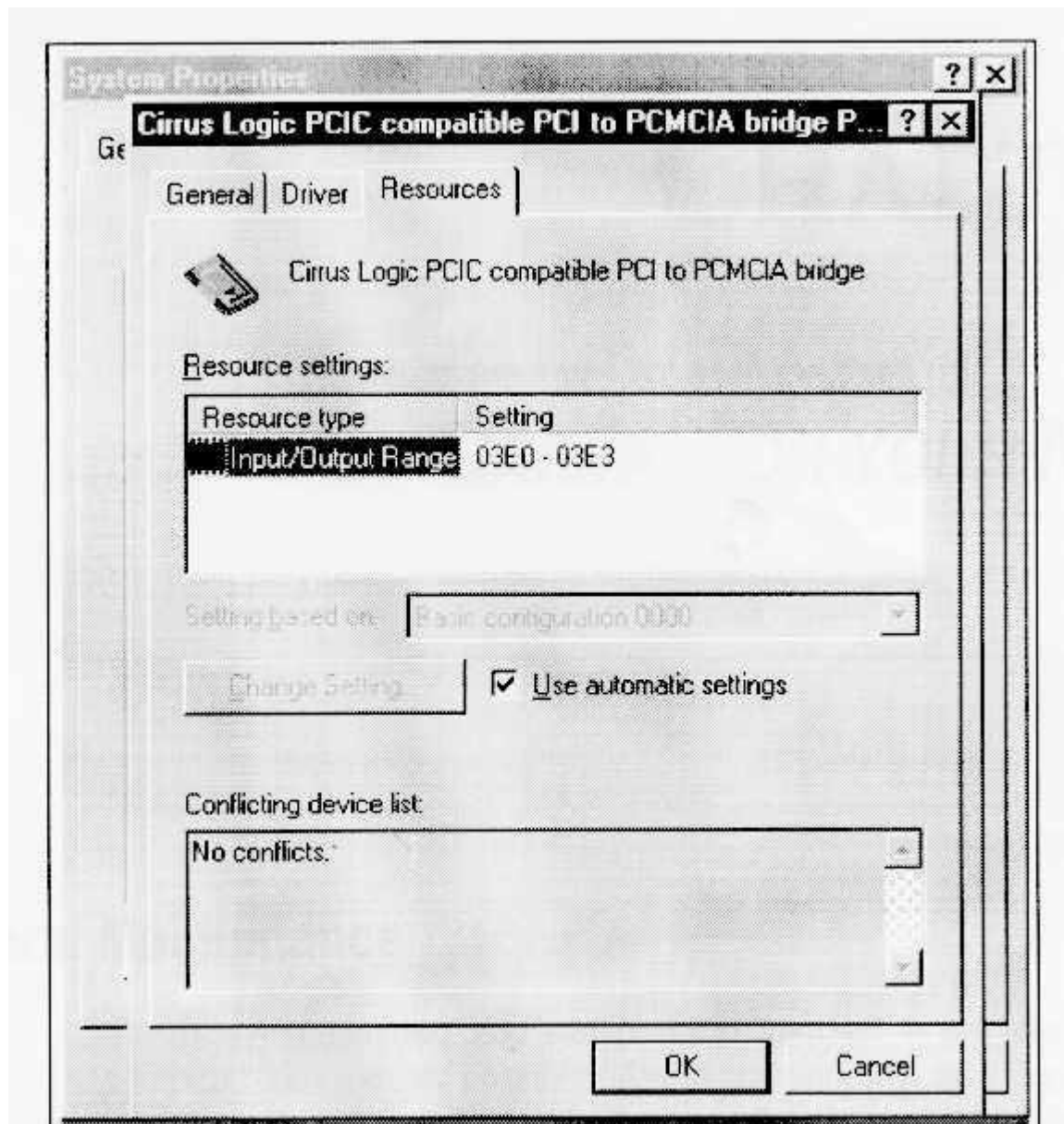
Figure 7-1 Windows 95 Control Panel

The PC Card (PCMCIA) Property sheet, displayed in *Figure 7-2,* provides information about installed PC Cards and allows you to remove a card.

[LM 7-2]

Fig 7.2: PC Card (PCMCIA) Property Sheet

PCMCIA Real Mode Drivers

For PCMCIA devices that do not have 32-bit PnP drivers, Windows 95 allows you to install real mode drivers provided by the devices manufacturer. The Windows 95 on-line help provides instructions on how to turn off 32-bit support so you can

use 16-bit real mode drivers.

[LM 7-3]

CHAPTER 8: CARING FOR YOUR NOTEBOOK

General Maintenance

The best maintenance you can perform yourself is preventive. Try to keep the computer as clean as possible. Avoid transporting or using it in dirty or dusty environments if possible. Use the carrying bag provided or some other clean container when you transport the computer. Be careful to avoid getting dirt and dust in the floppy disk drive.

Try to keep the keyboard as clean as possible. Avoid spilling liquids on it. You can clean the keyboard with a small computer vacuum to remove dust buildup that can impede key motion.

Always keep the port covers closed when you're not using the ports. This will prevent dust from getting into the connector ports and possibly affecting electrical contacts when you attach a device to the computer. You can occasionally use a vacuum to clean the ports.

Cleaning The Computer

Cleaning The Case

If the computer case gets soiled you can clean it. Always make sure that the computer is turned off and the AC adapter is disconnected before you do anything else. You can clean the case with a soft, preferably lint-free, cloth. If necessary you can use a mild detergent.

Avoid any cleaner that has abrasives in it and DO NOT use cleaning solvents or isopropyl alcohol-based products. Never spray anything directly onto the computer. Always spray onto a cloth and then wipe the computer with that.

Cleaning The LCD Display

The LCD display panel is covered with glass. You can clean the glass if it gets dirty the same way you would clean a computer monitor screen. Use a lint free cloth and if necessary some commercially available screen or glass cleaner. It is better to avoid ammonia-based cleaners, however.

Cleaning the Diskette Drive

In order to avoid causing damage to the sensitive read/write heads and diskette surface, it is important to prevent dust particles and dirt from entering the disk drive slot. If you suspect that the floppy disk drive needs cleaning, you can purchase a disk drive cleaning kit from your computer dealer. These kits usually consist of cleaning fluid and a diskette case that contains a disk-shaped piece of

absorbent material or fabric. Apply a few drops of cleaning fluid to dampen the fabric and then insert the cleaning diskette into the drive. When the drive reads the cleaning diskette, the fabric rotates under the read/write head, removing any dirt or dust particles.

[LM 8-2]

Occasional usage of these cleaning diskettes is a good way to remove dirt from the floppy drive's read/write head However when used too often, the fabric can over-abrade the drive head, causing more harm than good. Normal operation of the floppy drive in a dry, dust-free environment is actually an efficient set(-cleaning process. Do not use disk drive cleaning kits unless you suspect a problem with the drive. If you have trouble reading a diskette, make sure the problem is not with the diskette itself

Caring for Diskettes

Under normal conditions a diskette's rigid plastic case will protect it from damage. However, data stored on floppy diskettes are easily corrupted. Follow the protective measures listed below to preserve the integrity of data stored on floppy diskettes.

Never touch the magnetic surface of the disk. When handling diskettes, take care that you don't drop them.

Never turn off, reboot, or reset the computer when a diskette is in the drive and the drive activity light is on. Do not transport the computer with diskettes inserted in the drive.

Do not expose diskettes to extreme temperatures.

Keep diskettes away from magnetic fields generated by power supplies, monitors, magnets, etc.

Don't smoke in the same room where diskettes are used or stored. Particles from cigarette smoke are large enough to scratch the surface of the disk. Store diskettes in a dry, dust-free environment.

[LM 8-3]

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_____

APPENDIX A: TROUBLESHOOTING

This chapter will try to anticipate potential problems that you may encounter in the day-to-day use of your computer. Included in this chapter is information that should help to solve these problems for you. This section is organized into categories based on the hardware.

The Power System

Question: When I turn on the computer, nothing happens. What's the matter?

Answer: If your system is running off battery power, the batteries are probably completely drained. Attach the AC adapter and recharge the batteries. If you are running off the adapter, check to make sure that it is plugged into a live power source. If the power indicator light is lit, it indicates that the power source is good and that the adapter is functioning properly. If there is a battery in the computer, turn the power switch off, remove the battery, and then turn on the computer. If there is still no response, consult your dealer for an appraisal of the problem.

Question: The computer keeps beeping at me. Have I done something wrong?

Answer: No, but you may be about to. The computer is most likely trying to tell you that battery power is low. Save your work, quit immediately, and replace the batteries or use the AC adapter as a power source.

Booting Up

Question:When I turn the notebook on, I can't get an operating system prompt to appear on the screen. The notebook does seem to be running, though.

-Answer:Make sure that you have properly installed an operating system on the hard disk. Check that the brightness and contrast controls are properly adjusted. Try using a system floppy diskette to make sure the operating system will load properly. If it doesn't, contact your support representative.

The LCD Display

Question:I know the notebook is on, but the LCD screen is blank. Is it broken?

Answer:Probably not. More than likely, the screen contrast or brightness controls are improperly adjusted or you've accidentally put the computer into Suspend Mode by pressing the Suspend/Resume switch. Press the button again to reactivate the screen. Another possibility is that you've turned off the LCD display by pressing [fn]+[F8] and set the display for an external monitor. Press the space bar first to see if the computer is in Standby Mode. If the screen image doesn't come back, check the contrast and brightness adjustments. If the problem persists, press the [fn + F8] combination to toggle back to LCD mode. If the screen remains blank consult your dealer for technical support.

[LM A-2]

Keyboard

Question:I can't get the embedded numeric keypad to work.

Answer: Make sure that the [fn + Numlock] key is pressed and the PAD Lock status pattern is on if you want to access the keypad. Conversely, make sure the PAD Lock is off when you want to use the typewriter functions of these keys. Press the [fn] key to temporarily access the embedded numeric keypad while you hold down the key.

Question: When I type, I get numbers when I should get letters. What's wrong?

Answer: The numeric keypad is enabled. Disable it by pressing the [fn] and toggling [NumLock] key. The Pad Lock light should go out.

I/O Connections

  External Monitor

   Question: Is it possible to use both an external monitor and the LCD screen at the same time?

   Answer: Yes, the notebook provides three display configuration: LCD, monitor and Simul Scan (LCD & MONITOR active at the same time). The three modes are toggled on and off by pressing [fn + F8].

[LM A-3]

  Mouse or Other Pointing Device

  Question:I connected a Serial mouse to the computer but it doesn't work? Why is this?

  Answer:First make certain you followed the manufacturer's installation instructions completely and everything necessary to install the mouse properly. If you installed the mouse correctly and it doesn't work, check the following:

    Make sure the serial port option of the setup program is set to the same port which is selected for the mouse driver.

    Set the mouse device driver to the corresponding COM port which is selected for serial port option.

[LM A-4]

_____