386SXL/486SLC

NOTEBOOK COMPUTER USER'S MANUAL

▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶
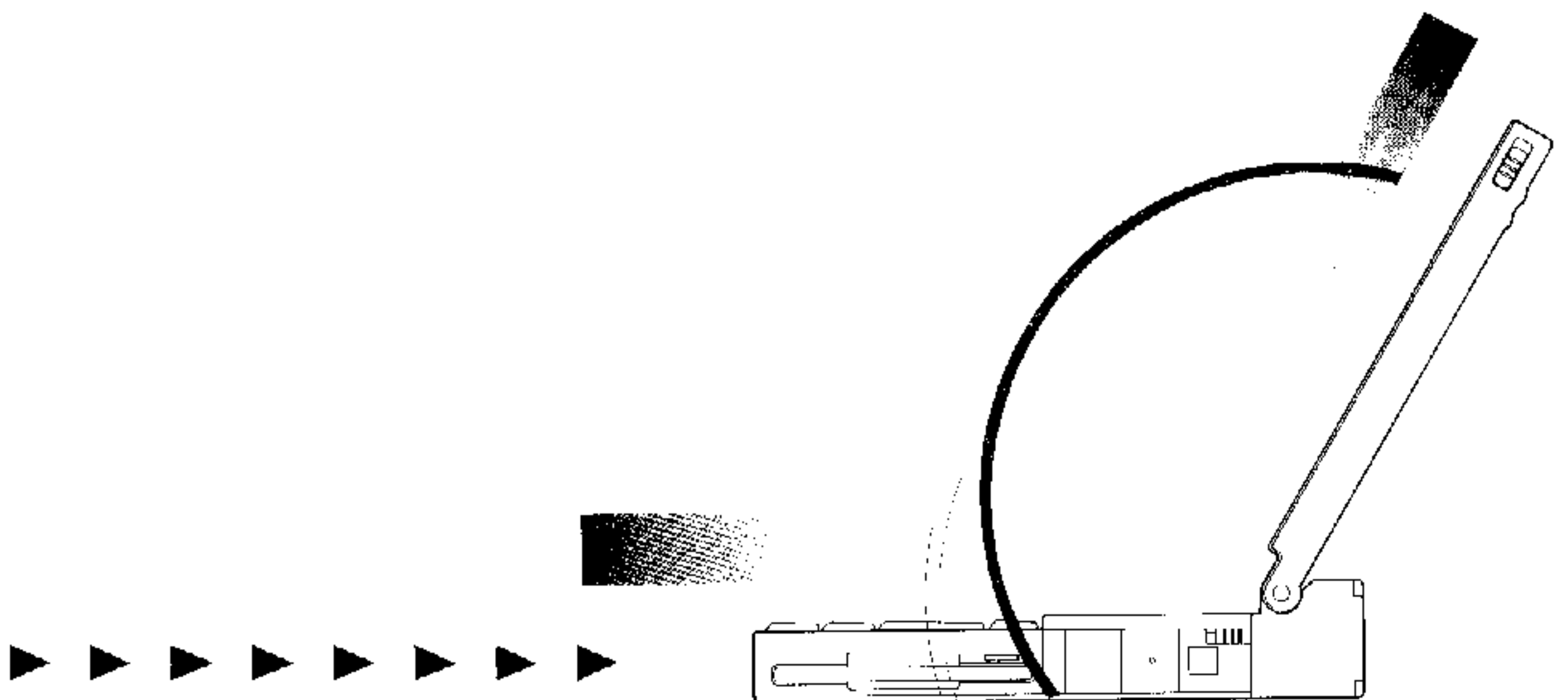
Federal Communications Commission
Radio Frequency Interference Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interfence when the equipment is operated in a residential installation. This equipment generated, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

NOTICE:

(1) The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

(2) Shielded interface cables and AC power cord, must be used in order to comply with emission limits.

CANADIAN DOC NOTICE
FOR CLASS B COMPUTING DEVICES

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulation of the Canadian Department of Communications.

"Le présent appareil numérique n'èmet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada"

CAUTION:

Those who are intended to use an adaptor which is supplied from battery powered electrical system of vehicle to charge or run your TS34 series note book personal computer, Please use an UL Listed adaptor which cable is assemblied and insert it into your cigarette lighter receptacle.

The Listing mark of Underwriters Laboratories Inc. on the adaptor includes the name and/or symbol of Underwriters Laboratories Inc., together with the word "Listed", a control number, and the product category name "Vehicle Battery Adaptors", (AATX).

ATTENTION:

The product that you have purchased contains a rechargeable battery.
The battery is recyclable. At the end of it's useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Ni-Cd

WARNING

a. Do not expose the unit to rain, moisture, excessive dust or temperature, it may cause fire or shock hazards.

b. High voltage is present inside the unit . Do not remove the cover under any circumstances. Danger of serious shock hazards!

c. Switch the unit OFF, unplug powercord and notify qualified service technician if:

- liquid has been spilled
- the unit has been dropped
- small metal objects like paper clips have dropped through the ventilation solts. Those object may cause a short circuit.
- fuses continue to blow out.
- a distinct change in operation occurs
- powercord or plug is damaged or frayed.
- when the unit exhibits a distinct change in performance this indicates a need for service.

d. This unit should be operated only from the type of power source indicated on the marked label.

e. This unit is equipped with a earthing-type plug. This plug will only fit into a earthing-type power outlet. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not negate the safety purpose of the earthing-type plug. Never cut or break the third (earth) prong.

f. The socket outlet must be installed near the equipment and be easily accessible.

CLEANING

a. Switch the unit OFF and unplug the powercord from outlet.

b. Use soft cloth or tissue and a mild cleaner. Do not use liquid or aerosol cleaners.

Table of Contents

Foreword

This manual covers the information you'll need to get your Notebook ready to use. To do this you'll need to do the following:

- Unpack your Notebook from the shipping container
- Set up the computer hardware
- Install an Operating System

The organization of the manual takes you through these procedures. If you are already familiar with desktop computers or perhaps laptop computers, the material is presented so that you can quickly see the information you'll need to set up the Notebook.

If you are less familiar with computers, additional explanations will follow the basic information.

In the next section you'll remove the Notebook and its accessories from the shipping container check to make sure all items are present. Once you've unpacked everything and ready to assemble there's a a brief overview of the system hardware features.

Section 1: Preparing To Use The Computer

This section covers unpacking the Notebook hardware and checking that all its components are present. This section also provides an overview of the hardware showing where the features are located.

Unpacking & Checking The Equipment

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

- The Notebook (with two Ni-Cd battery packs already installed)
- One AC Adapter
- A Power Cord
- A Carrying Bag
- This User's Manual

Remove all the items from the container. If anything is missing or broken inform your dealer and ask for a replacement.

Please save the packaging in case you ever need to ship your Notebook or send it in for service you will need the shipping container.

Before setting up the computer, familiarize yourself with the hardware features noted in the next section.

Notebook Features and Controls

This section provides information on how to use the features of the computer and how you can attach accessory equipment to expand the computer's basic capabilities.

Your Notebook includes the following features:

- A 25MHz 80386SX / CX486SLC Microprocessor
- A 33MHz CX486SLC Microprocessor

The microprocessor is the heart of the computer. It performs all the computing functions and orchestrates the actions of the rest of the system.

- A 1.44MB Floppy Disk Drive

This disk drive can use either 720KB (kilobyte) "Double Density" or 1.44MB (megabyte) "High Density" 3.5-inch floppy diskettes. You can store your data and/or program on them and use them from the floppy diskette. However, since the Notebook has a hard disk as standard equipment you will probably want to use the hard disk for this. Floppy diskettes are useful for making backups of your program diskettes and data files. (Also, anytime you want to load new software onto the hard disk you'll use the floppy drive to transfer the software from the floppy diskettes where the program located.)

- Hard Disk Drive

The Notebook comes with a hard disk installed.

- 10-inch LCD VGA Display Screen (For Mono only)

The Notebook has a 10-inch 64 gray scale VGA back-lit display that normally shows characters black on white.

- 8.5-inch Color STN LCD VGA Display Screen (For Color only)

The color LCD Interface Controller provides a palette up to 226K-colors on an eight-colors STN panels. It can display 256 colors simulataneously at 320x200 mode.

- 82/83-key QWERTY Enhanced Keyboard

The Notebook's keyboard uses a standard QWERTY layout with the addition of keys special to the computer's function. 82 key for US version, 83 key for international version. A numeric keypad is incorporated into the main keyboard to allow you to conveniently enter numerical data.

- Connectors For Other Equipment

The Notebook has a number of connector ports for equipments you can attach to the computer, including the following:

- – A connector for a full-size keyboard

- – A connector for a standard VGA or multifrequency monitor, either paper-white or color.

- – A standard 9-pin serial ports 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 to the computer.

- – A 160 pin connector for docking station.

- Combined AC & Battery Power System

To power the Notebook, you can use an AC adaptor plugged into a wall outlet or the rechargeable nickel-cadmium battery packs provide power when it is inconvenient to use the adaptor power source. Please note, you can use the batteries and AC Adaptor at the same time, because the system will automatically default to the AC adaptor outlet source and simultaneously recharge the battery packs. Using the "power management" features described in Section 5 the computer can run on battery power for approximately 3.5 hours. The battery packs will recharge consecutively in approximately 3.5 to 4 hours. Please note, extra battery packs can be purchased separately to increase the convenience of using the computer while away from the AC power source.

- Upgradeable System Memory

The Notebook comes with 2MB (megabytes) of system memory installed. You can add more if you require it. You can install up to 8MB of memory in the Notebook.

- Special Software Features

The Notebook has a number of software features that are a permanent part of the computer's operation. Some affect the LCD video display, while others provide a set of "Power Management" features which help to extend the computer's operating time while using the battery power source.

- Optional Equipment You Can Purchase:

There are several options you can purchase to further enhance the utility of your computer.

Extra battery packs are available to increase the convenience of using the computer while away from an AC power source.

Optional equipment includes a Fax / Data Modem. The Fax / Modem performs as both a standard data modem and a facsimile machine.

The Notebook's parts and features:

The illustrations on the following pages identify the various features on the Notebook computer. Familiarizing yourself with these terms will help as your read further in the following sections.

The Notebook (top, front, and right side view)
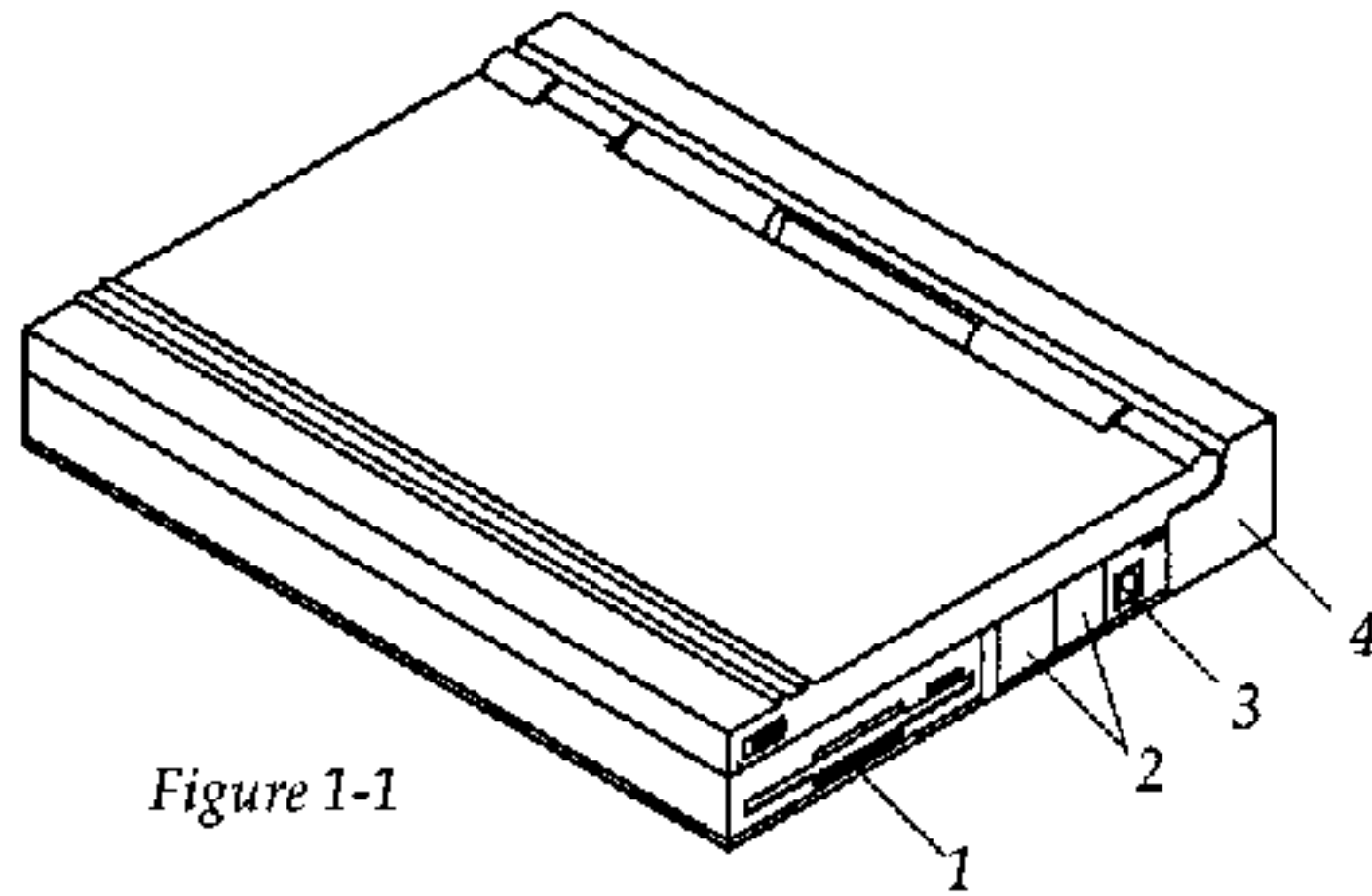
Figure 1-1

(1) Floppy Disk Drive (covered).

(2) Buttons for the Mini Track-Ball port (optional)

(3) AC Adaptor Connector Port.

(4) Battery Compartment Cover Panel.
    This is one of two compartments for the rechargeable batteries. The second battery compartment is located on the unit's left-side.

Figure 1-2 shows the various connector ports located on the Notebook's left side. An external Keyboard port, external VGA connector, a serial port, a parallel port, optional modem port (covered if not installed), and the second battery compartment cover panel are all located on the computer's main body.

The left side of the LCD Video Display (cover) contains both the Contrast Control and the Brightness Control for adjusting the LCD Video Display's appearance.

Notebook Left-side View
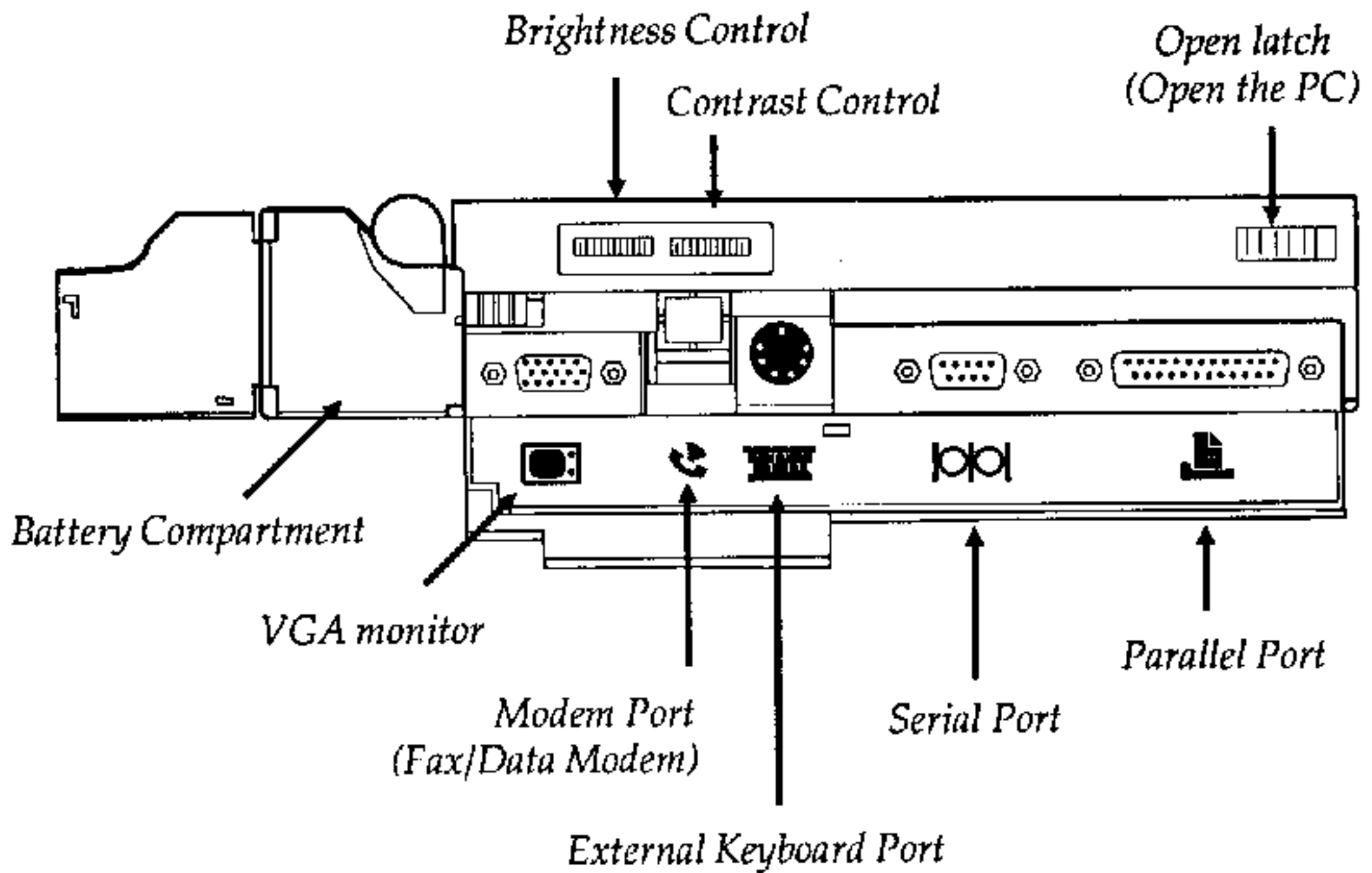
Figure 1-2

LCD Video Display and Keyboard:

Open the computer by pulling forward the latches on the cover and then raising the cover. Adjust the screen angle to a comfortable position.

Figure 1-3 shows the computer in the open position. Here, you can see the *LCD Display Screen*, the *Mini Track Ball (mouse)*, the *LCD System Window*, and the *Keyboard* containing the function key set, typewriter keys and an embedded numeric keypad.

Notebook in the Open Position

Contrast Control
Brightness Control
LCD Display
System Window
Power ON/OFF
Suspend Resume
Track-ball
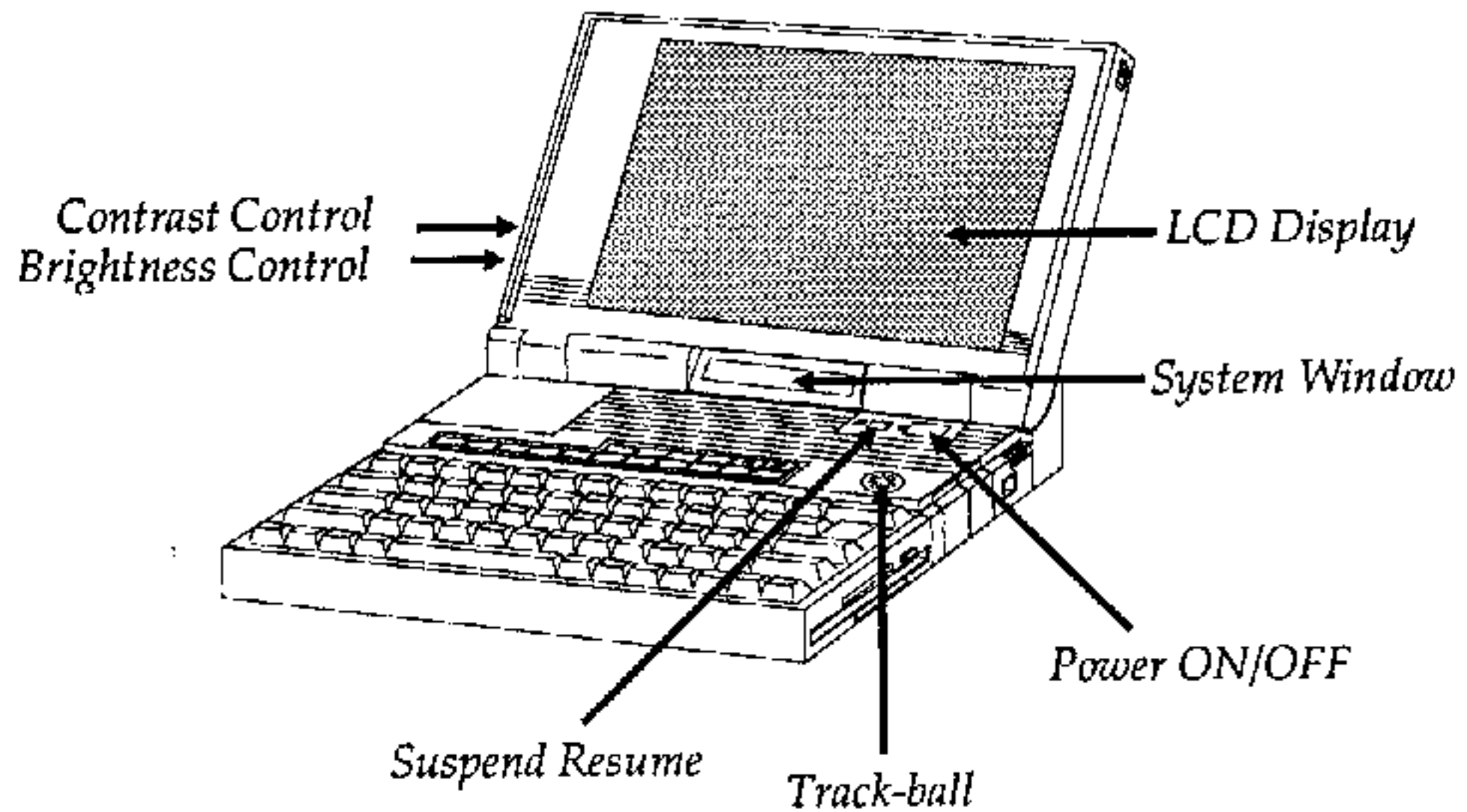
Figure 1-3

Section 2: Installation and Initial Setup

If you are unfamiliar with computers, this section explains what you need to next to power up the system, and what to do. You add any external equipment to the computer.

Fortunately, your computer is put together unlike regular larger Personal Computers which come with a separate monitor and a keyboard which you have to attach yourself via separate cables to various connector ports. Here, the Notebook already has the Video Monitor and the Keyboard attached. Even *rechargeable batteries* are already installed. Literally, all you have to do is unpack the unit and turn "ON" the Power Switch. Yet, we recommend you use the AC Adaptor plugged into an electrical wall outlet as your main power source and limit the battery power source to those few occasions when an electrical outlet is unavailable.

If you are starting the computer for the very first time, please make a special note that you must install a Disk Operating System (DOS) program on the unit's Hard Drive. This is an optional item, and you can use quite a variety of DOS versions. If your Dealer did not install DOS for you, then please consult your Disk Operating Software manuals for instructions on how to load the program from the Floppy Drive Disk onto your Hard Disk Drive.

Also, if you wish to install various external devices, particularly a printer, you need to access the special SETUP Menu Program to let the computer know you've attached a printer, or any other device. The SETUP program also allows you to "configure" or tailor your system to your special needs.

The Notebook already has some "configurations" set in the SETUP Program, and you will very likely have little to worry about for now. However, we recommend you read this section for future reference purposes when you are ready to make any changes. Don't worry that you may have to know anything about programming or special commands, as the SETUP Program is fairly Menu driven. Meaning you scroll through the various sub-menus and make your selections among various predetermined choices. You really can't do any damage to the computer here. If you accidentally switch a setting and don't know which one to switch back to, then please consult the apprapriate in this chapter which specifically deals with that particular configuration setting.

Next, we will show you how to connect the notebook to the AC Adaptor and how to access the SETUP Menu Program.

Connecting The AC Power Adaptor:

Figure 2-1 shows how to connect the AC Adaptor to the Notebook computer.

Connecting the Power Cord to the AC Adaptor

Plug the power cord
into the receptacle of
the adaptor

This power connector plugs
into the computer's AC
Adaptor Port
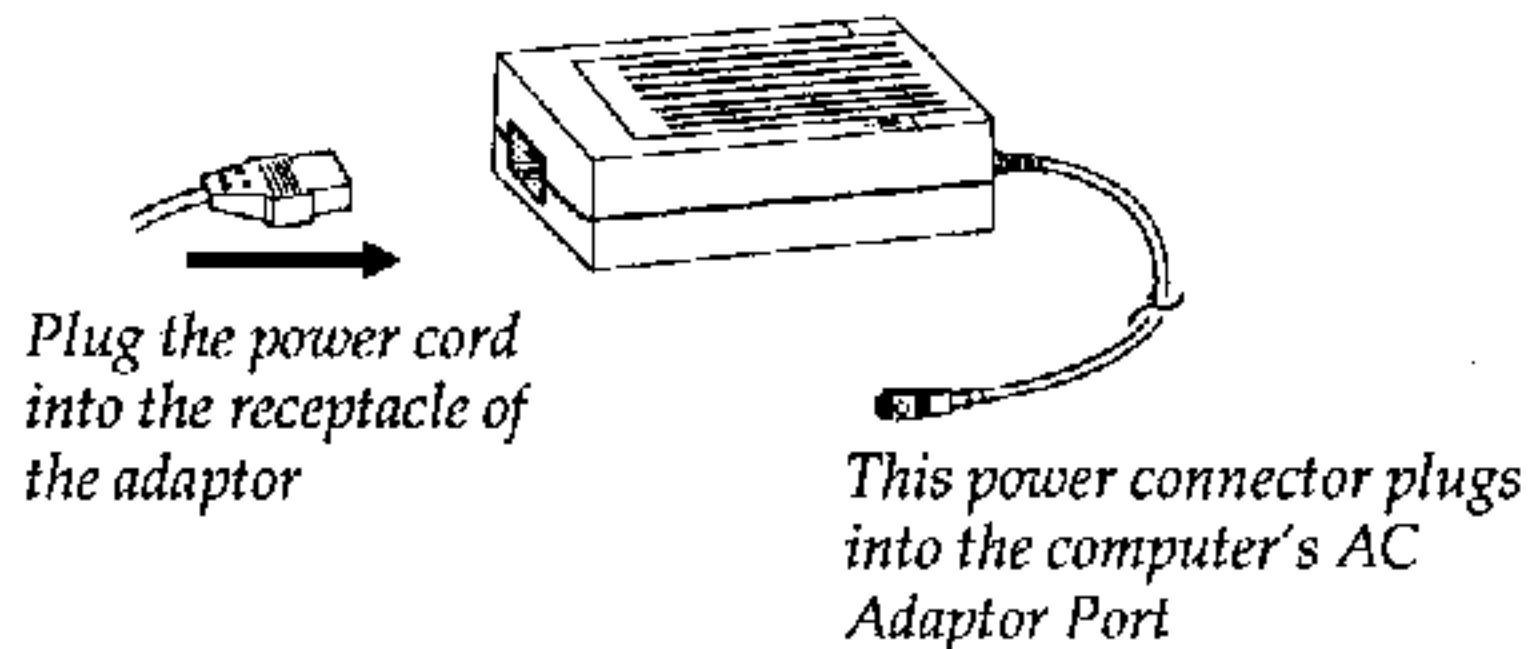
Connecting the AC adaptor to the computer

Figure 2-1

Plug the adaptor's
power connector into
the computer
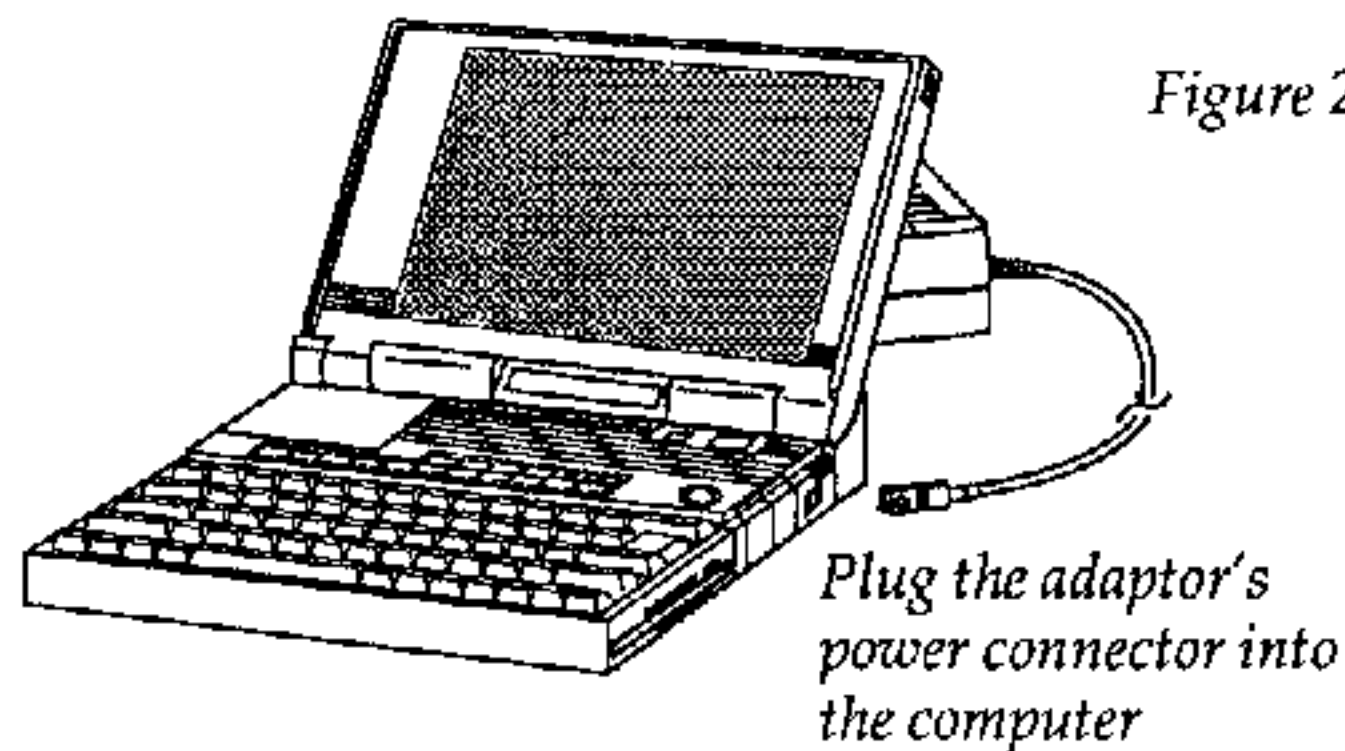
Step 1: Make sure the notebook is "OFF".

Step 2: Connect the *Power Cord* into the AC Adaptor.

Step 3: Connect the *Power Connector* cable between the AC Adaptor and the Notebook connector port located on the right rear side of the computer.

Step 4: Plug the Power Cord from the adaptor into an electrical wall outlet.

Step 5: Turn "ON" the computer's *Power Switch* and let the system "Boot Up".

Note: you can optionally purchase a Car Adaptor Cable which plugs into your car's cigarette lighter.

Connecting the computer to an AC power source
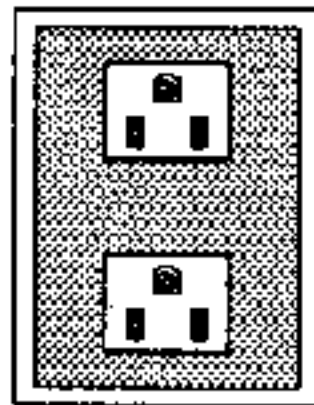
Your power outlet (mains) connection may be different from that shown here

The plug should match the standard for your area

Note: DO NOT remove or defeat the plug ground (the third prong)

The plug on the power cable will vary according to the electrical standard of your area

Note, for added protection, we recommend you use a "Surge Protector" device plugged between the AC Adaptor and the electrical wall outlet to prevent the effects of sudden current variations from reaching the computer. The sudden peaks of electricity are not good for the computer.

If you travel to an area with a different electric power standard check to make sure what that voltage system is. You may need a transformer or you can just use an adaptor 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 dealer or seek technical support.

As an added note, your system is equipped with two rechargeable nickel-cadmium (Ni-Cd) battery packs already installed. Please refer to Section 5, Power Management for further discussions about these rechargeable batteries and how to optimize their use.

Using The Setup Menu Program:

When you turn the computer on it will first go through a series of self tests that are done by software that is installed as a permanent part of the computer. As part of these tests the computer uses a record of the hardware present to check the system. This record is created by using the some software that is also permanently recorded in the computer called a Setup program. If the self-test discovers a difference between the record and the existing hardware it will display a message on the screen asking you to run the setup program. You can then correct the record.

In most cases the record should be correct when you receive the computer. If so, the self-test will finish and the computer will look for an Operating System to load into the computer memory. Operating systems are the subject of Section 3.

Every time you turn the computer on. The self-test will run. When it's done, you should get a message saying that there is a non-system 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. If you reach this point, install your Disk Operating System Program (DOS) in accordance with the accompanying DOS manuals.

If a problem is discovered during the self-test you'll see a message on the screen. The message will include some indication of the problem discovered and tell you to use the Setup program.

Even if you don't get any message to use the SETUP Program, at some time in the future you may want to change the equipment on your computer. As your needs change, you will very likely have to reconfigure your system using the SETUP Program to let the computer recognize these "changes".

For example, you should run SETUP under all of the following conditions:

- You have set up the computer for the first time and you got a message stating that you should use the SETUP Program.
- You added or removed memory (RAM).
- You want to reset the system clock
- You added an "external" video display and want the computer to recognize its existence.
- You want to change the Expanded Memory
- You want to automatically set the CPU clock speed so that it either runs fast or slow.
- You want to redefine the Communication Ports to prevent any conflicts
- You need to readdress the LPT ports to prevent any conflicts with any Docking Station you later on add to the system.

Note: The above are only examples.

The next section discusses how to move around in the SETUP Menu Program, how to switch and save your new settings. A brief discussion of the optional settings among the different submenus follows.

If the hardware configuration is changed or the "Self-Test" can not pass, the following message with be on the screen. "Invalid configuration information, please run SETUP program. Press the F1 key to continue, F2 to run the setup utility." Press [F2] and wait for the SETUP Main Menu to appear on the screen. Check the setup menu and correct it, then press the escape key (ESC) to leave the program and Re-boot.

As shown in Figure 2-2, you will be confronted with a list of items which can be highlighted. Move the [up] of [Down] Arrow keys to switch vertically among the settings. Each of these choices in the list will provide you with further access to a Sub-Menu when you hit the [F1] key at a given highlighted field.

```
┌─────────────────────────────────────────────────────────────────────┐
│              Phoenix SETUP Utility (Version 1.00)  03                 │
│     (c) Phoenix Technologies Ltd.  1985, 1990   All Rights Reserved   │
│  ─────────────────────────────────────────────────────────────────   │
│                                                        Page 1 of 3    │
│                  ** Standard System Parameters **                     │
│                                                                       │
│   System Time:         15:00:00          Video initial state          │
│   System Date:         Apr 12, 1992      Video Display:   LCD (Normal) │
│                                          LCD Contrast:    Auto Map     │
│   Diskette A:          3.5", 1.44 MB     Font Select:     Expanded     │
│   Diskette B:          Not Installed     Cyl  Hd   Pre   LZ   Sec Size │
│   Hard Disk 1:         Type 19           1024  7   512  1023   17   59 │
│   Hard Disk 2:         Not Installed                                   │
│   Base Memory:         640 KB            Password:        Disabled     │
│   Extended memory:     1024 KB                                        │
│   Video Card:          VGA/EGA                                         │
│   keyboard:            Installed                                       │
│   CPU Speed:           Fast              NumLock on at boot:    YES    │
│                                                                       │
│  ════════════════════════════════════════════════════════════        │
│  ──────────────────────────────────────────────────────────────────  │
│    ESC        F1                          ↑↓      +/-       PgUp/Dn    │
│    Menu       Help                        Field   Value     Page      │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 2-2

Note, The Notebook uses the Setup Program and BIOS from Phoenix Corp. The main object in this section is for you to understand that the standard entries and parts of the record you can/might modify.

Function Keys in Setup Menu:

This is menu bar across the bottom of the screen. It tells you which key to press to activate various functions of the program.
There are:

Esc:

Pressing the Esc key brings up a menu that lets you exit the program in various ways.

Field:

The arrow keys move the highlight bar between entries.

Values:

After you highlight an entry field you can change most of the values using the plus and minus keys. You'll notice that this key, however changes to say "Numeric Value". Memory entries and some entries do this on page 2 and page 3, which we'll discuss shortly.

Page:

Pressing either the PgUp or PgDn key switches to another page of the Setup program. To use the Page Keys you have to hold down the Fn key at the same time (lower left corner of the keyboard).

F1:

When you press this key a window will pop up with help information about whatever entry on the screen is currently highlighted. Highlight the entry you have a question about before you pressing the key.

The Setup program Esc key menu

```
┌─────────────────────────────────────────────────────────────────────┐
│              Phoenix SETUP Utility (Version 1.00) 03                  │
│      (c) Phoenix Technologies Ltd. 1985, 1991   All Rights Reserved   │
├─────────────────────────────────────────────────────────────────────┤
│                                                    Page 1 of 3        │
│             ** Standard System Pa┌──────────────────────────────────┐ │
│                                  │       ** Exiting SETUP **        │ │
│  System Time:        20:51:50    │                                  │ │
│  System Date:        Oct 14, 1991│  ┌─────┐   Continue with SETUP.  │ │
│                                  │  │ ESC │                         │ │
│  Diskette A:         3.5", 1.44 MB  └─────┘                         │ │
│  Diskette B:         Not Installed│           Save values, exit     │ │
│  Hard Disk 1:        Type 2      │  ┌─────┐   SETUP, and reboot.     │ │
│  Hard Disk 2:        Installed   │  │ F4  │                         │ │
│  Base Memory:        640 KB      │  └─────┘                         │ │
│  Extened Memory:     Not Installed│          Load default values    │ │
│  Video Card:         VGA/EGA     │  ┌─────┐   for all pages.         │ │
│  Keyboard:           Installed   │  │ F5  │                         │ │
│  CPU Speed:          Fast        │  └─────┘                         │ │
│                                  │           Reboot without         │ │
│                                  │  ┌─────┐   saving values.         │ │
│                                  │  │ F6  │                         │ │
│                                  │  └─────┘                         │ │
│                                  └──────────────────────────────────┘ │
├─────────────────────────────────────────────────────────────────────┤
│     ESC                              F4        F5         F6          │
│   Continue                          Save     Defaults    Abort        │
└─────────────────────────────────────────────────────────────────────┘
```

The Setup program has three pages. The first page is for the "Standard System Parameters", the second for setting up the VLSI 82C310 chipsets, and the third page is for entering the power management settings. On the first page there are 15 entries. The correct information about the computer hardware should appear here. If it is not correct, you must enter the appropriate entries with correct value. The correct default settings are as follows:

System Time:	[Current time]
System Date:	[Current date]
Base Memory:	640KB
Extended Memory:	1024KB
Video Card:	VGA/EGA
Keyboard:	Installed
CPU Speed:	Fast
Diskette A:	3.5", 1.44 MB
Diskette B:	Not Installed
Hard Disk 1:	Type 19
Hard Disk 2:	Not Installed
Video Display:	LCD Normal
LCD Contrast:	Auto Map
Font Select:	Expanded
Num Lock on at boot:	Yes

Standard System Parameters

The time and date should be the current time and date as you using the Setup program. If they are not correct, you should change the settings to the current time and date.

Base & Extended Memory

The Notebook comes with the system memory which is divided into the base memory and the extended memory.

The base memory should be set at 640 KB. If the settings is not 640, you should type in 640. You don't need to type the "KB".

The extended memory settings will vary with how much memory is installed in the computer. In the basic 2/4MB configuration the extended memory setting is 1024KB. You'll note that 640 KB base memory does not add up to 2/4 MB (2048/4096 KB). It is because that the memory design of PC-compatible computers reserves the 384KB from 640 KB to 1024 KB for other uses. One of these uses is the BIOS shadow function mentioned in the description of page 2 of the Setup program.

Video Card
This setting should always be left at VGA/EGA. The Notebook LCD display runs at VGA resolution. If you connect an external monitor to the computer as described later in the manual, it should also be a VGA or multifrequency monitor with VGA resolution.

Keyboard
This should always be set as installed. If you attach an external keyboard as described later in the manual, the computer will automatically detect it and switch to the external keyboard.

CPU Speed
There are two settings for this, fast and slow. This setting defines what the default CPU operating speed will be when you turn the computer on. You can set it at either one, but in fact, there is no reason to set it at slow. In most cases you'll prefer the performance of the maximum processing speed. If you need to run the computer at the slower speed, you can always use the CPU key commands described later to switch to the slower speed temporarily.

Disk Drives

You'll note that the computer does not have a second floppy disk drive so the Diskette B is recorded as "Not Installed".

The floppy drive is a 3.5", 1.44MB type. The drive type of hard disk is: Located at the buttom of notebook, which is just below the rating label.

HARD DRIVE TABLE	CAPACITY	CYLINDER	HEAD	SECTOR
TYPE 48	80MB	980MB	10	17

For Example:

If your hardisk is 80MB. You must input a series of numbers as following:

	cyl	Hd	Pre	LZ	Sec	Size
Type: 48	980	10	0	980	17	81

[Note: The user must key in the numbers with underline and the size 81(M) will appear at the end of line.]

Video Initial State:

Video Display
There are three settings for this: LCD (Normal), External CRT, Simulscan. You can choose any one to meet your requirement.

LCD Contrast
There are two settings for this: Max. Contrast and Auto Map. Select Auto Map to make text mode display automatically map 256 colors into 64 shades of grey. Select Max. Contrast to provide the highest contrast level, it makes text vivid.

Font Select
There are two settings for this: Normal, Expanded. Select Normal to use the normal font; select Expanded to use the expanded font.

Password:

This option provides the password setting for system security. You may leave it "Disable" to chose that no need to keyin password while booting or entering Setup-Utility, or keyin your password less than 7 characters directly on this entry to protect your Notebook PC from usage of an unauthorized user.

When password is set, system will hold if you miss to pass the password request 3 times every time before booting or entering Setup-Utility.

Pressing back-space till "Disable" appears will clear your password.

NumLock on at boot

This is used to decide whether the embedded numeric keypad is selected or not when system is booting.

Check all settings on Page 1 and make sure the correct information is entered. When you're all set you can go on to Page 2 as described below.

Setup Program Page 2

To access Page 2 of the Setup program press the Fn and PgDn keys at the same time. This will shift the display to Page 2.

The default value on Page 2 of BIOS Setup program screen

```
           Phoenix SETUP Utility (Version 1.00)  03
       (c) Phoenix Technologies Ltd.  1985, 1990   All Rights Reserved

                                                    Page 2 of 3
                  ** VLSI SCAMP Chip Set Feature Control **

  Shadow BIOS ROM:      Enabled       Enable EMS:        Disabled
  Shadow 16K at C0000h: Disabled      EMS Memory Size:   512 KB
  Shadow 16K at C4000h: Disabled      Use RSVD Memory:   Disabled
  Shadow 16K at C8000h: Disabled
  Shadow 16K at CC000h: Disabled
  Shadow 16K at D0000h: Disabled
  Shadow 16K at D4000h: Disabled
  Shadow 16K at D8000h: Disabled
  Shadow 16K at DC000h: Disabled



  ESC          F1                      ↑↓          +/-      PgUp/Dn
  Menu         Help                    Field       Value    Page
```

Intel 386 SX Feature Control

Shadow BIOS ROM

The computer has some information permanently stored in a type of computer chip called a ROM (Read Only Memory) chip. Among other things this is where the Setup program is stored. It also contains a very basic level of software called the BIOS (Basic Input Output System) which the computer makes reference to while operating. Shadowing is the process of copying the contents from the ROMs to the reserved 384KB of system memory within the 640KB to 1MB range. The advantage of this procedure is that DRAM access time is typically much faster than EPROM access time.

This setting should be set to Enabled if you want to speed up system BIOS operation.

The other addresses listed in the left column can be left disabled. Each entry shadows 16KB in the reserved system memory area. You can enable all of these without any ill effect. You might not want to do this however, since leaving these disabled allows you to recover the unused reserved memory by using any of a number of programs designed for this purpose.

Intel 386 SX EMS Feature Control

Phoenix EMS Driver

Enable EMS / EMS memory size:

Expanded memory enables you to run programs to manipulate large amounts of data. If you want to use Phoenix PEMM driver as expanded memory device driver, you must set the item "Enable EMS" to Enabled and set an amount of memory above 1024KB to be used as expanded memory by 128 KB increment. The amount of expanded memory base on the requirements of the applications you want to use. The Phoenix EMS device driver (PEMM) should be installed in the CONFIG.SYS file when system is booting.

Refer to your software and driver documentation for information on its memory setup requirements. To set the amount of extended memory reassigned as expanded memory, Highlight the "EMS" Memory Size" entry and type in the amount of memory you want to use as expanded memory.

Setup Program Page 3

The BIOS Setup program Page 3

```
                    Phoenix SETUP Utility (Version 1.00)  03
           (c) Phoenix Technologies Ltd.  1985, 1990   All Rights Reserved

                                                            Page 3 of 3
                        ** Miser(tm) Power Management **

   Power Management Features:    Enabled
   Hard Drive Power Save Mode:   1    min
   Doze Mode:                    4    sec
   Sleep Mode:                   1    min
   COM1/COM2:                    TRACKING BALL/COM2
   Internal Printer Port:        LPT1 (378H)

   Battery Low Warning:          Beep




   ESC          F1                            ↑↓       +/-      PgUp/Dn
   Menu         Help                          Field    Value    Page
```

Power Management feature

These entries control the power saving features of the Notebook. If you intend to operate the computer on battery power, you should enable the "Power Management Features" entry and set Hard Disk, Doze Mode, Sleep Mode and LCD Panel timer properly.

Doze Mode

This entry can be set a Max. 14 seconds to the Min. 1/8 second for timeout. If timeout, the power management will automatically speed down the system clock. This action effect to save considerable power consumption.

Hard Driver Power Save Mode

The major power consumption of a Hard Disk is which on the spin-motor and the controller. If the time setting of this entry expires, power of spin-motor will be taken to enter the Hard Disk into Standby state. Whenever if accessed again, the Hard Disk will power up automatically.

Sleep Mode

Sleep Mode is the maximum power saving mode. System supports a timer to count system idle time for Sleep Mode operation. You can enable this entry by setting a timeout period ranging from 1 to 15 minutes. When expires, the power management puts the system into Sleep Mode which status is that all the peripheral were turned off and the system clock was decreased.

COM1/COM2

This entry field provide you to choose the communication port (see System Reference page 3-8) to be COM1 or COM2. If you intend to use the Built-in tracking ball, select Tracking Ball/COM2 on this entry will set the present communication port to be COM2 and link the Built-in Tracking Ball with COM1.

You may can choose COM1/Modem to set the present communication port as COM1 and link the internal Modem (if installed) with COM2, or choose Tracking Ball/Modem to link Tracking Ball with COM1 and Modem with COM2 and to disable the present communication port.

The power management features are discussed in detail in section five of this manual. You must enable "Power Management Feature" in order for the power saving features to work.

You may can choose Disable/COM2 or Disable/Modem to disable Internal COM1.

You may can choose COM1/Disable or Tracking Ball/Disable to disable Internal COM2.

You may can choose Disable/Disable to Disable Internal COM1 and COM2.

Internal Printer Port

This entry field provide you to choose the Internal Printer Port to be LPT1, LPT2 or Disable it.

Confirming The Setup

When you've checked the setup information and confirmed it is correct, or made any changes necessary, you must record the changes. To do this press the Esc key. A window will pop up explaining the exit choices. Press F4 to record the current values. The computer will restart. Press F6 if you don't need to make any changes. The program will close without restarting.

Changing The Setup

If you change the computer's hardware configuration, for example by adding more memory, you will need to record this fact in the hardware information. You can access the Setup program at any time by pressing the following keys at the same time:

<Ctrl - Alt - S>

Pressing these keys brings up the Setup screen. If you change the hardware and forget to record the change, you'll get an error message when you turn the computer on. It will tell you run the Setup program.

Pressing <Esc - F5> will automatically reset the computer and load the Setup program's default settings.

When you're done with this section the next setup in getting the computer ready to run is to install an operating system. The next section has information on this topic.

Section 3 Control Features

Video Screen Display Controls, Keyboard Functions, And The System Window

Introduction

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

The alphabet letters located on the keyboard are in the same position as those found on a standard typewriter. The uses 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 wordprocessing, spreadsheets, or database management. In addition, the *twelve function* or [FN] keys located directly above the keyboard are discussed and how they relate to application software.

Video Display Controls

The computer has two display controls located at the video screen's left-side as shown in Figure 3-1. These are "Contrast" and "Brightness" controls that improve your viewing ability of the LCD video screen. You slide the dials either clockwise or counter-clockwise to adjust them. Sliding the bar to the counter-clockwise position increases the effect in both controls.
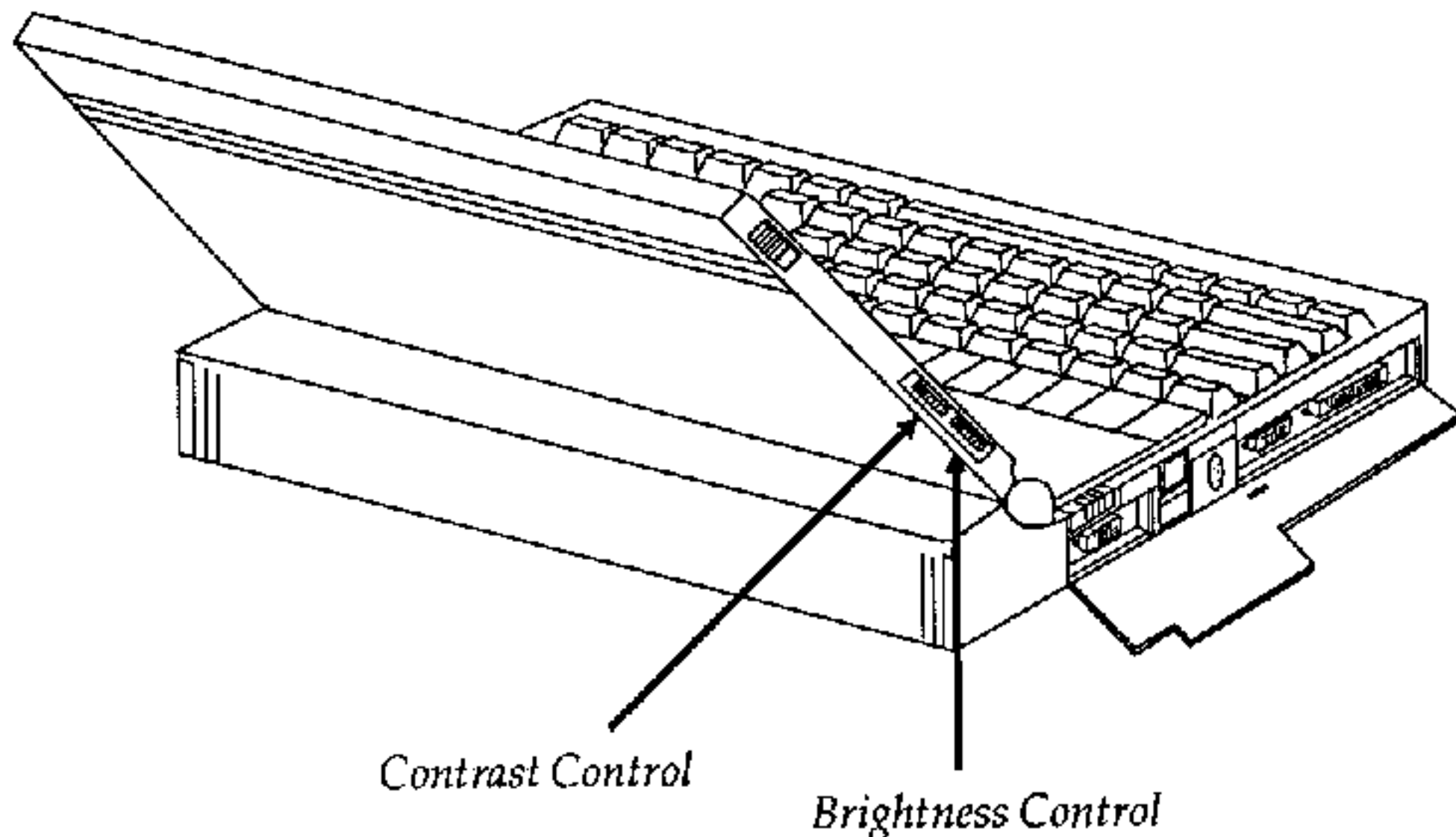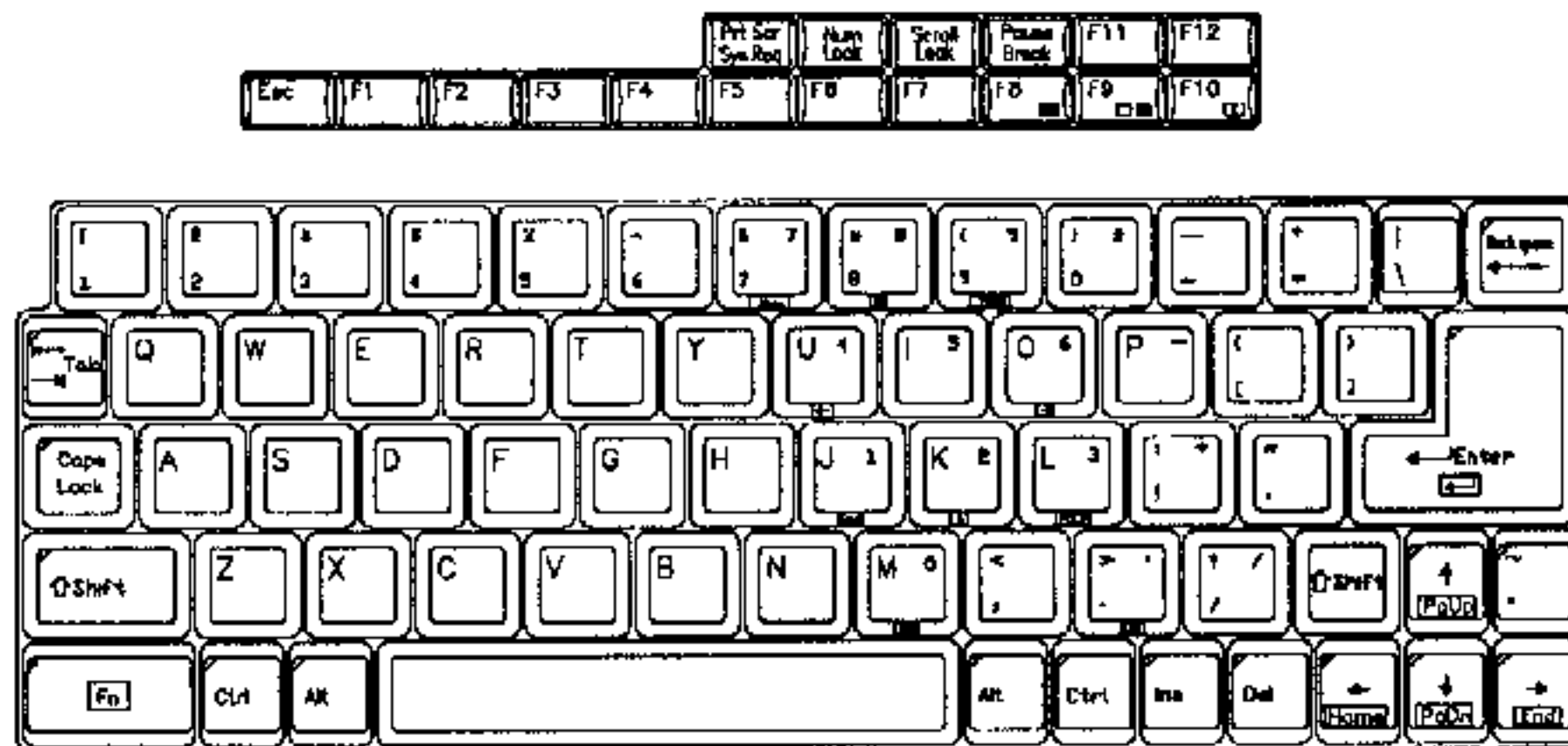
Notebook LCD Display Controls

Contrast Control

Brightness Control

Figure 3-1

Some Important Keys On The Keyboard

Figure 3-2 shows the Notebook PC's keyboard, and identifies several keys which you will commonly use when either work with the Disk operating Software or other application software. Try locating these keys on the Notebook itself.
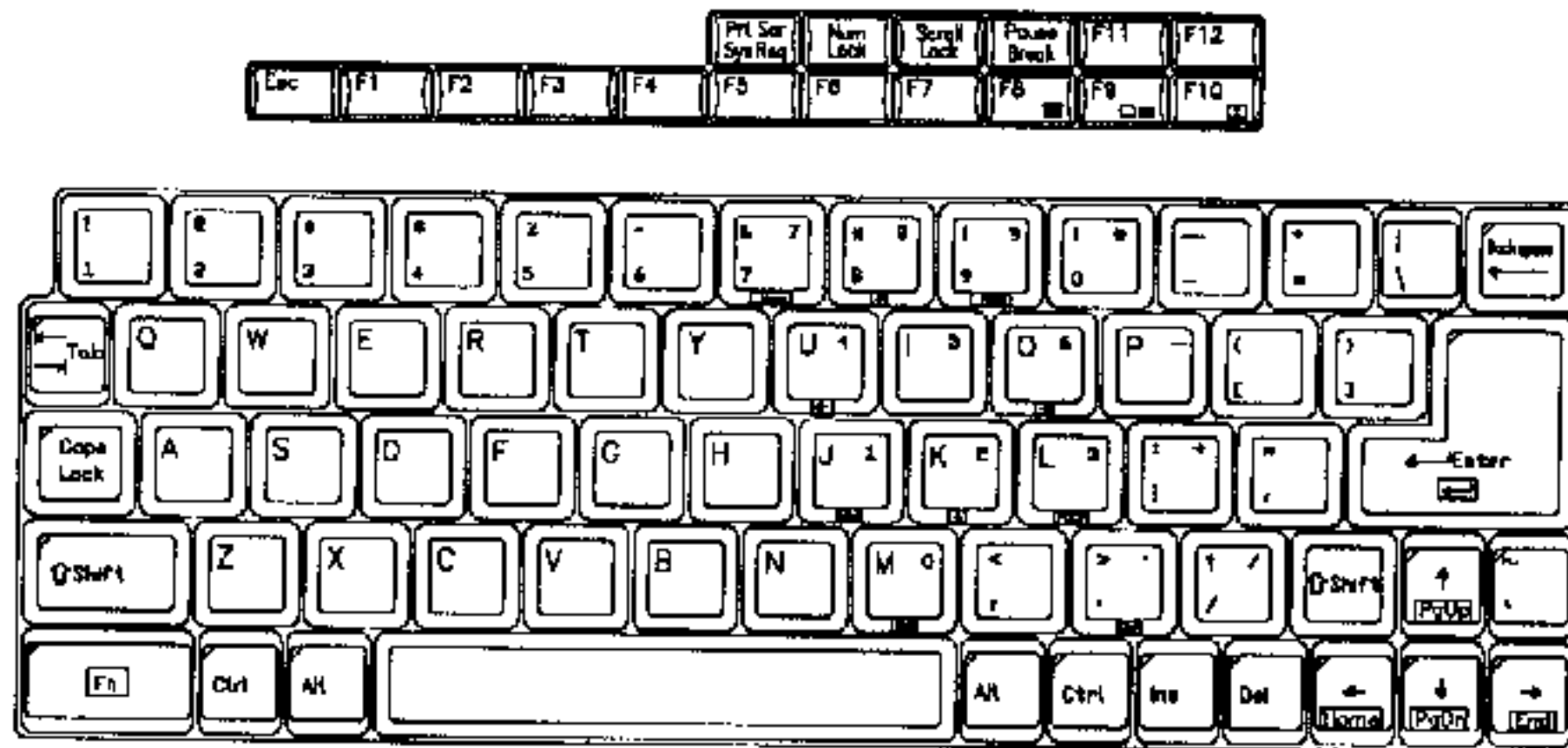
The Notebook's Keyboard

1. [Esc]: The Escape key allows you to cancel any specific command you may have just keyed in. For example, you mistakenly hit the function key, [F1], in your wordprocessing or spreadsheet program, but want to "cancel" the command so the computer ignores the function key, just press [Esc].

2. [Print Screen/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, press the [Alt] key and the [Print Screen/SysRq] key together.

Some Important Keys On The Keyboard

Figure 3-2 shows the Notebook PC's keyboard, and identifies several keys which you will commonly use when either work with the Disk operating Software or other application software. Try locating these keys on the Notebook itself.

The Notebook's Keyboard

1. **[Esc]**: The Escape key allows you to cancel any specific command you may have just keyed in. For example, you mistakenly hit the function key, [F1], in your wordprocessing or spreadsheet program, but want to "cancel" the command so the computer ignores the function key, just press [Esc].

2. **[Print Screen/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, press the [Alt] key and the [Print Screen/SysRq] key together.

3. **[Pause/Break]**: The Break key has no effect when pressed by itself, but is 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 video screen. While in the Disk Operating System program, the [Enter] key must be pressed after you type in a DOS command, this lets the operating system then start to process the command.

5. **[Fn]**: This key is locked just below the left-Shift key. Pressing this key engages the alternative function of all keys labeled in blue on the keyboard, including temporarily activating the embedded numeric keypad. When numeric keypad is locked, Fn key can tempororily deactivate the numeric keypad until you release the Fn key.

6. **[Scr Lock]**: located at the upper right-hand corner of the keyboard. When engaged, pressing the cursor control keys moves the cursor by fields of text. Toggle "off" the scroll lock key to disengage this mode.

7. **[Alt]**: Used by itself, the Alternate Key has no effect in carrying out any commands, but functions with the [Control] key to reboot or restart your operating system program. For other application software, the [Alt] key may perform a different function. Thus, refer to your software manuals for an explanation on how to use this key during that specific software's operations.

8. **[Ctrl]**: Used by itself, the Control Key has no effect in carrying out any commands, but functions much like Shift Key. The [Ctrl] key's function depends mainly upon what type software you are currently using. Refer to your software manuals for an explanation on to use this key during the specific software application.

9. **[Shift]**: Similar to the typewriter's shift key, this key allows you to type letters in UPPER CASE. The Shift key has no effect on the computer, when used by itself.

10. **[Caps Lock]**: The Caps lock key corresponds to a manual or electric typewriter's Shift Lock Key. Note, the [Caps Lock] key only puts LETTERS IN TO UPPER CASE without having to hold down the computer's shift key. This key does not let you type the punctuation marks or symbols above the Number Keys. Instead, you will have to press the [Shift] key to type these symbols. Note that when the Caps Lock key is engaged, the Caps lock Status symbol comes on in the System Window display.

11. **[Num Lock]**: The Numeric Lock key activates the embedded numeric keypad and allows you to use the "alternate" blue numbers you see printed on some of the keys. When numeric keypad is locked. Activate this key by pressing the [NumLock] key. To deactivate this mode, press again the [Num Lock] key.

Cursor Control Keys And Editing Text

The keys listed in this section are used specifically to move the "blinking" cursor on the LCD Video Screen, or when used with other keys, will provide some very powerful editing functions while you work.

The cursor's location identifies where you can specifically type text on the screen. Having the ability to quickly move the cursor around the screen and or edit text will significantly improve your efficiency.

The importance of these *Cursor Control* keys is more apparent when using your application software such as wordprocessing, spreadsheets, and databases, etc. 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 to determine specifically how these keys are used.

Figure 3-3 highlights both the Keyboard's *Cursor Control* and *Text Editing* keys. A brief discussion of each key follows.
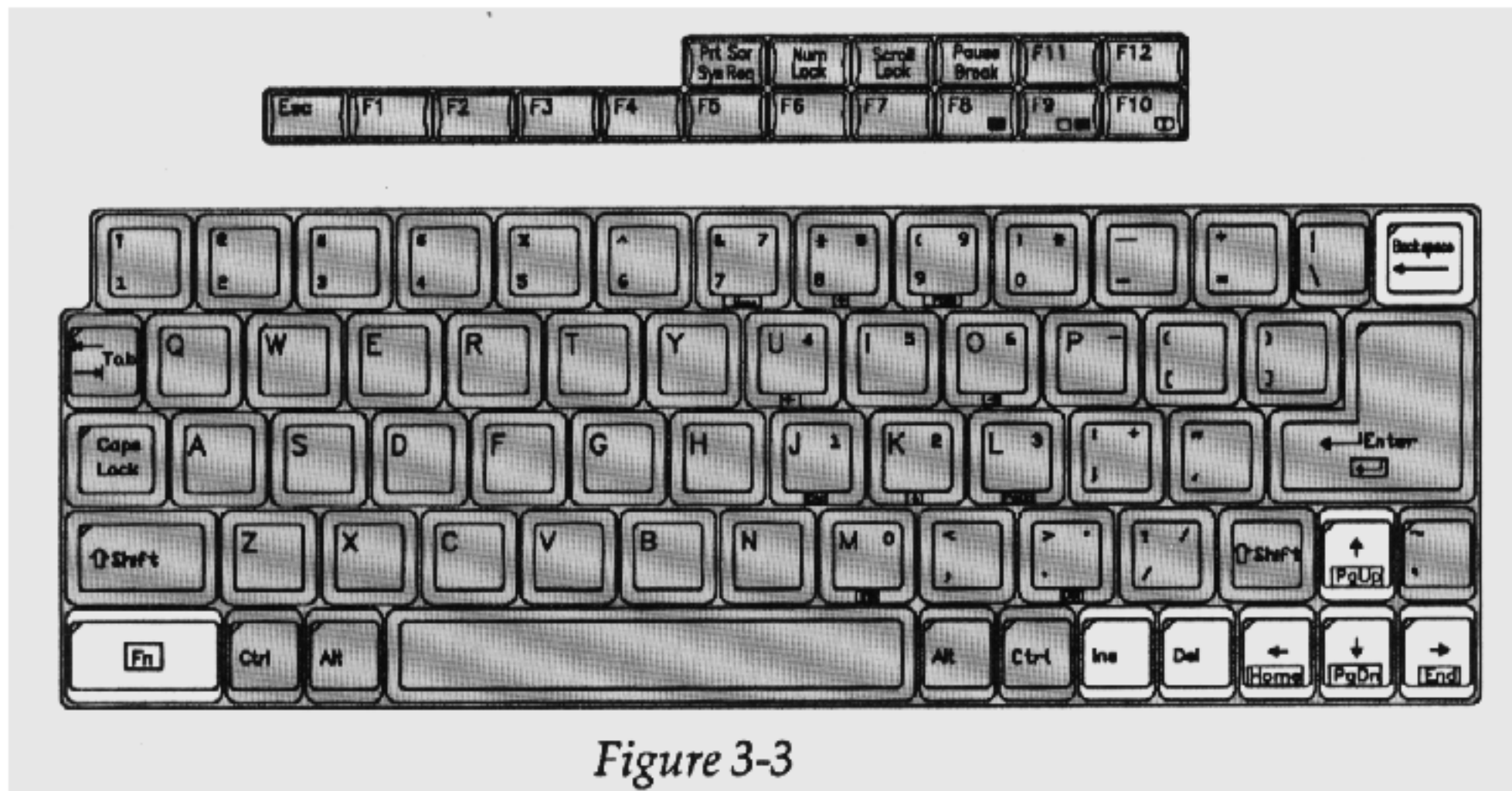
The Cursor Control Keys

Figure 3-3

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

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

3. **[Page Up]** or **[Page Down]**: These keys allow you to quickly move the cursor on the screen page-by-page. . Another important place where the *Page Up* and *Page Down* keys are used is in the Computer's Setup program. There, you use these keys to move between the pages of the program.

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

5. **[End]**: Refer to your application software manual on how to quickly move the cursor, for example, to the end of a line or the end of a document.

6. **[Ins]**: The Insert key is used mainly in editing. It enables you to insert characters within the text while using DOS. Yet, some application softwares will automatically insert text while within a document, so you don't need to use this key. Instead the insert key has a different function. For example, in Word-Perfect, a wordprocessing software package, pressing this key will switch the editing mode to "typeover". In this mode, you can just type over the text, instead of inserting characters.

7. **[Del]**: For editing work either within a document or DOS commands. Pressing the Delete key will remove any characters directly above the cursor and then pull from the right the remaining typed characters. Some application software have specific commands where this key is used with other keys to remove entire words or lines with two single strokes. This is a great feature, especially while editing your work. (Refer to your application software for more detailed instructions on how to use this key.)

8. **[Back Space]**: While within a document, the Back Space Key allows you to move the cursor to the left and simultaneously erase those characters in its path. Note, this is different from the left arrow key which will not erase any typed characters.

The Function Keys:

Notice the twelve function keys on the top row of the keyboard. These keys appear in sequence ([F1], [F2], [F3] .... [F11], [F12]) from left to right. You use these keys during your specific application software (wordprocessing, spreadsheet, database, etc). Please note this 12-key set functions differently among the different software programs. Refer to your software manuals for these keys' specific uses during software applications.

Embedded Numeric Keypad:

An embedded numeric keypad is included in the keyboard, and is activated by one of two ways. Pressed Fn key and toggle on and off the [Num Lock] key, or alternatively, temporarily activate the numeric keypad by temporarily holding down the Fn key. The numeric keys will be active as long as you hold down the [Fn] key. When numeric keypad is locked.

This embedded numeric keypad makes "number intensive" input more convenient. The alternative value of each key in the keypad is printed in blue on the center of some keys as shown in Figure 3-4. When the numeric keypad is locked, you will see the change in the System Window.
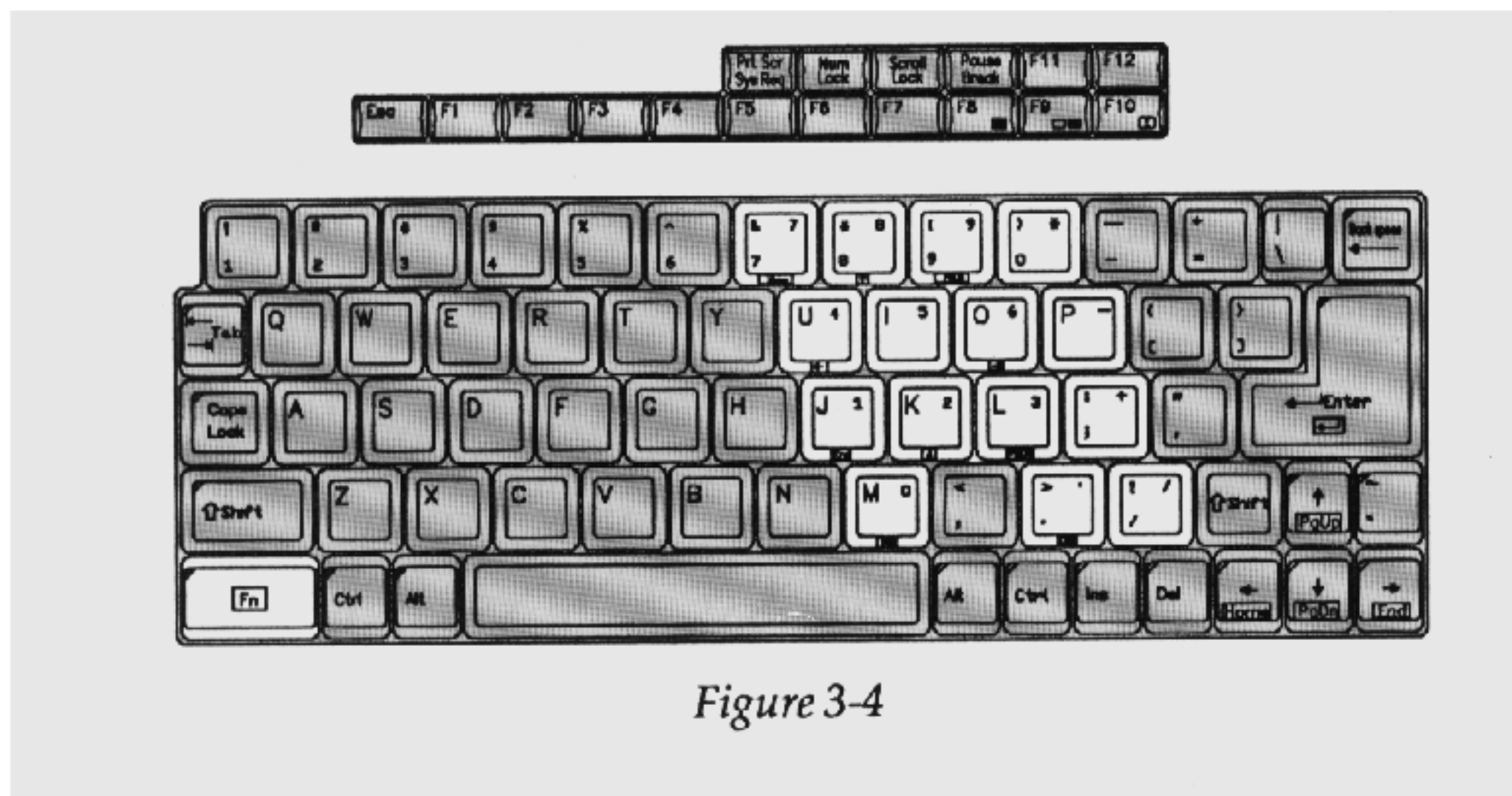
The Embedded Keypad

Figure 3-4

Suspend/resume Switch

This switch located next to the Power ON/OFF Switch on the right side of the computer allows you to halt the computer's operations to help conserve power if you will be away from the computer for only a short time. Pressing this switch will either activate or deactivate the "suspend" mode. The effects of this function are fully described in Section 5, Power Management.

Changing The Processing Speed

You can change the computer's processing speed using two key combinations. Normally, the computer will operate at full speed. You can switch to a lower speed that is half as fast. To use the combination hold down the [Ctl] and [Alt] at the same time and then press the [↓] key. If you use the combination hold down the [Ctl] and [Alt] at the same time and then press the [↑] key, the pressing speed will return to its full speed.

Controlling The Video Display Using Special Key Combinations

Special key combinations allow you to control the video screen display. These key combinations activate software features built into the computer. The keys used are the **[Fn]** key in conjunction with either the **[F8]**, **[F9]**, or **[F10]** function keys. Note, if you connect an external keyboard that does not have a [Fn] key, you must use the [Ctrl] and [Alt] keys by pressing them at the time instead of the [Fn] key. Press them and the corresponding function key for the specific feature you want to activate.

To control the video display, the three key combinations and their functions are as follows:

a). Press **[Fn+F8]** keys to switch back and forth between the notebook's LCD screen and an external monitor or dual scan (LCD and CRT used simultaneously). When you turn off the computer, the system will default to the LCD screen the next time you turn the computer on, even if an external monitor is connected.

b). Press [Fn+F9] to reverse the background and foreground screen. If a mono-LCD is attached, the function of this hot key is to switch the display screen between a white character on the black background screen or a black character on the white background screen. If a color LCD is attached, this hot key does not work. The screen does not change.

c). Press [Fn+F10] to stretch the screen display vertically. In some display modes, the image displayed on the screen does not use the entire screen and some blank space is left at both the screen top and bottom. Using this key combination will stretch the display vertically so that the entire screen is filled.

System Window Display Panel

Located above the keyboard, the System Window display panel indicates various activities or modes that are active on the computer system. When you've activated some function, a corresponding symbol will appear until you deactivate that feature.

Figure 3-5 shows a typical "System Window Display" with all the symbols that can be displayed. A description of each symbol in the System Window follows.
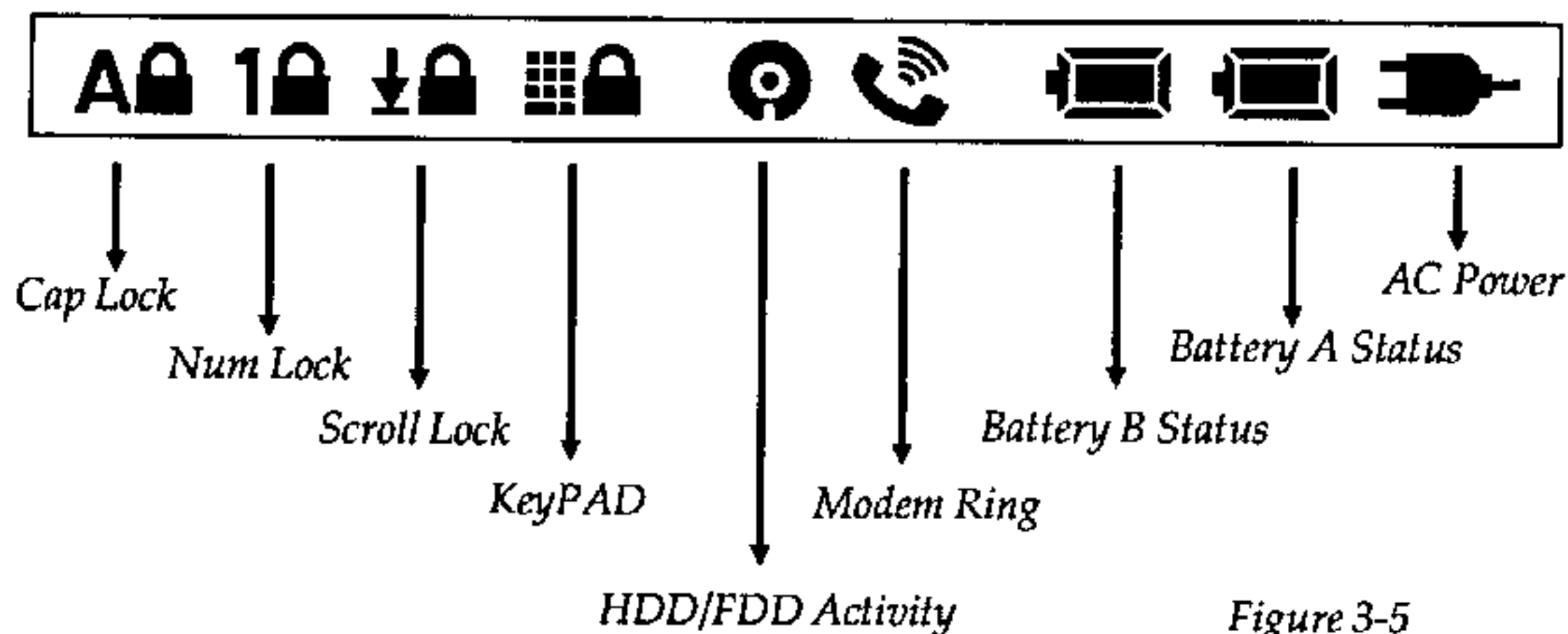
System Window and the Various Symbols Which Appear

Cap Lock

Num Lock

Scroll Lock

KeyPAD

HDD/FDD Activity

Modem Ring

Battery B Status

Battery A Status

AC Power

Figure 3-5

Cap Lock: This symbol appears when you've hit the [Cap Lock] key on the keyboard. With this key toggled on, the symbol will appear in the System Window and all letters will be typed in upper case.

Num Lock: This symbol appears when you've hit the [Num Lock] key on the keyboard. With this key toggled on, this symbol will appear in the System Window and the embedded numeric keypad is activated.

Scroll lock: This symbol appears when you've hit the [Scroll Lock] key on the keyboard. With this key toggled on, this symbol will appear in the System Window and the cursor control keys move the cursor by fields of text.

Key Pad: This symbol appears when the [Fn] keys is pressed and [Fn]key is not depressed activating the embeded numeric keypad. The symbol will appear in the system window, and disappear when [Fn + Num Lock] is pressed again.

HDD/FDD Activity: This symbol indicated that the *Floppy Disk Drive (FDD)* or *Hard Disk Drive (HDD)* is active. When these two devices read or write data, this symbol flashes.
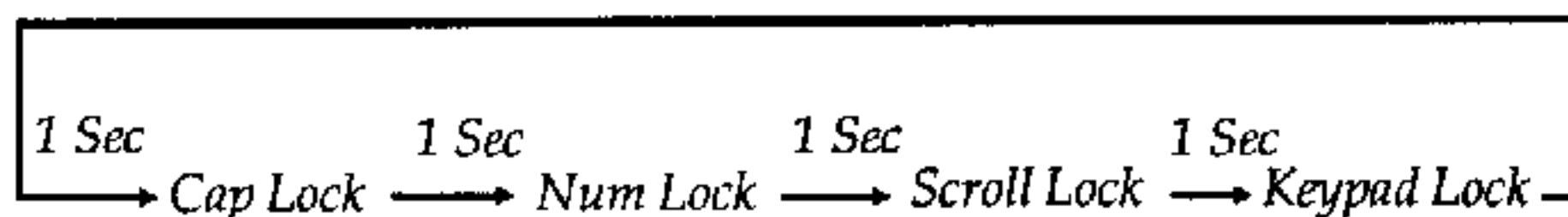
Modem Ring: This symbol appears when the modem is ringing.

Battery B Status: Battery pack B is located at the computer's left side toward the rear. This symbol indicates this battery pack's status. Please refer to Section 4 for more details diagnosing the meaning of the associated symbols for this indicator.

Battery A Status: Battery pack A is located at the computer's right side toward the rear. This symbol indicates this battery pack's status. Please refer to Section 4 for more details diagnosing the meaning of the associated symbols for this indicator.

AC Power: This symbol indicates the Notebook is using AC type power. When AC power IN and power switch is ON, the symbol is like " ➡ ". When AC power IN and power switch is OFF the symbol flashes every sec.

Suspend Mode: The System Window provides this special pattern when you've suspended operations to conserve battery power. The special pattern shows as follows:

```
 1 Sec            1 Sec            1 Sec            1 Sec
   └──▶ Cap Lock ──▶ Num Lock ──▶ Scroll Lock ──▶ Keypad Lock ┘
```

Section 4: Peripheral Equipment

Any equipment you attach to your Notebook is called types peripheral equipment. In this section we'll look at the different of equipment you can use with your computer. The Notebook has several ports for connecting this additional computer hardware. Some of this equipment is standard, while others can only be used specifically with the Notebook. This section includes information on the following kinds of devices and how to connect them to your system:

- Parallel devices
- Serial devices
- External monitors
- External keyboards

First we'll go over what these devices are and what type requirements there are to use these devices with your Notebook system. After that, information is provided on how to attach these different devices to your system.

Additional Equipment You Can Use

There are several connectors located on the computer. As noted earlier these include the following:

- One parallel port
- One serial port
- An external monitor connector
- An external keyboard connector
- One mini track ball (optional)

The parallel port, the serial port, the VGA monitor connector, and the external keyboard connector are all at the left side of the computer as shown in Figure 4-1.
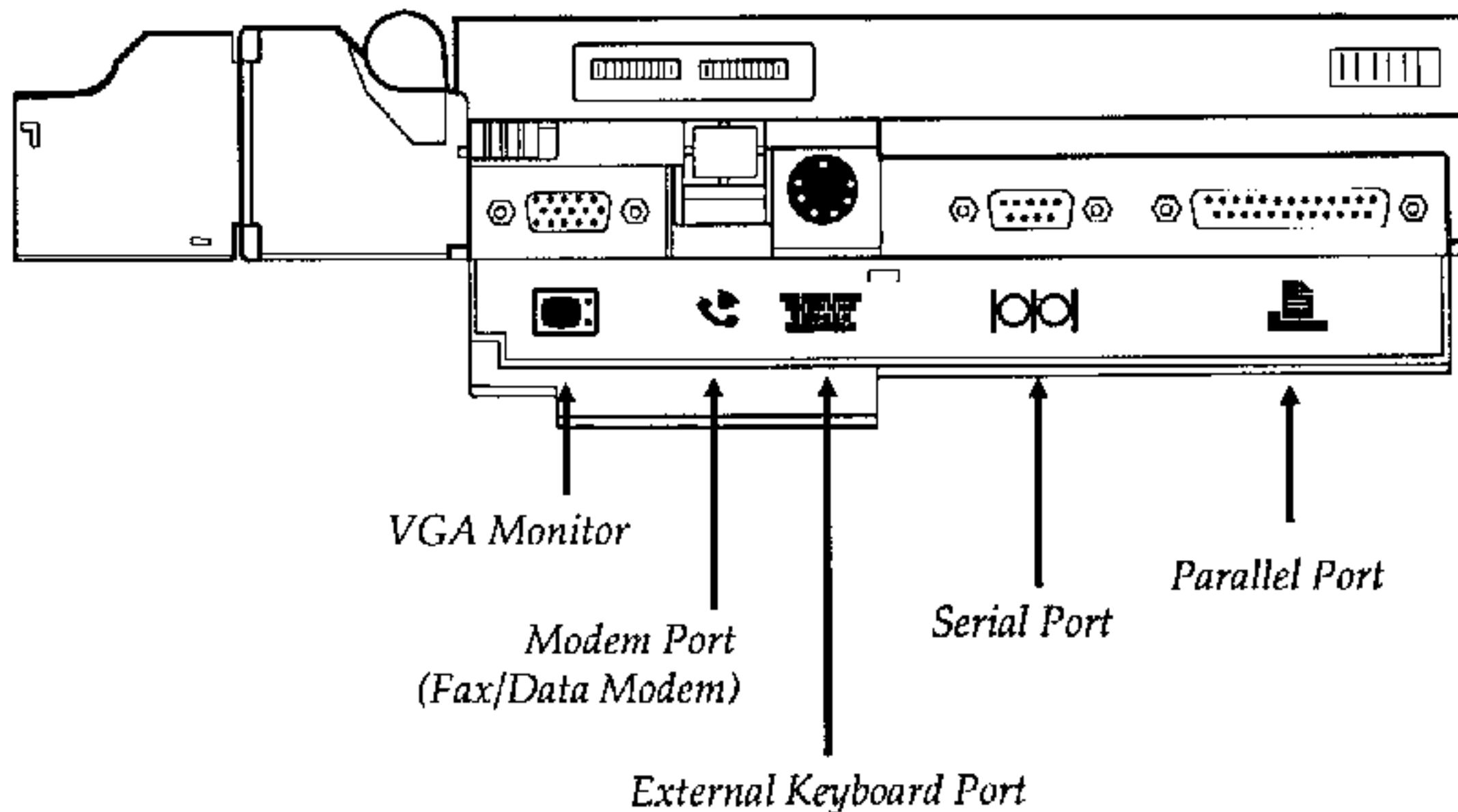
Notebook I/O ports

VGA Monitor

Modem Port
(Fax/Data Modem)

External Keyboard Port

Serial Port

Parallel Port

Figure 4-1

Parallel Devices

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

Serial Devices

This is a standard RS-232C serial port. Any device that uses this standard can be connected to the Notebook.

For example, most pointing devices such as a mouse or graphics tablet can be directly connected to the computer. External modems or fax modems will usually employ a standard "null modem" cable. If you have any doubt about the cables required for equipment you plan to purchase you should consult the seller to ensure you have the correct cables.

External Monitors

The Notebook has a port to connect an external VGA or multifrequency monitor. The port is a standard 15-pin analog connector commonly used with these monitors. Monochrome, gray scale or color monitors can all be used. The display output of the computer will give you standard VGA color and resolution on a color monitor.

External Keyboard

The keyboard port allows you to attach a full size enhanced keyboard to the computer. 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.

Mini Track Ball (optional)

The built in mini track ball is so called mouse, You can install the mouse driver and use the track ball. When you move the ball to any direction, the cursor on screen will move at the same direction. The return and escape button, commonly used in ordinary mouse is at the right side of the Notebook.

Connecting External Devices

Connecting Serial Devices

The Notebook has two serial ports, named COM1 and COM2. The Mini-track ball is built in at the COM1 port, and can be disabled. The other serial port connector provided is COM1 or COM2 depending on your setup configuration. If the track ball is enabled, provided serial port is COM2; Otherwise, it is COM1. If the track ball and Internal Modem are enabled, the provided serial port is inactive. For detail configuration refer to the setup screens on Section 2.

Connecting Parallel Devices

To connect a parallel device to the computer you'll need the standard Centronics-compatible parallel cable mentioned earlier. Before you connect any device, check the documentation that comes 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 power on the Notebook first before power on the printer.

Connecting An External Monitor

The Notebook's external monitor port is compatible with both VGA and multifrequency monitors. Perform the following steps to connect the monitor:

Step 1: Make sure the monitor is the correct type. Either a VGA-compatible or a multifrequency monitor is acceptable.

Step 2: Connect the monitor cable to the monitor first before connect the cable to the monitor port on the computer.

Step 3: Connect the AC adapter to the computer.

Step 4: Connect the monitor to a power source.

Step 5: Turn on the computer.

Step 6: Turn on the monitor.

When the computer boots, the LCD panel will be the active display. To activate the external monitor you'll need to press an activating key combination. Press the <Fn> and <F8> keys at the same time. The Notebook display panel will turn off and the external monitor will become the active display. You can turn on the LCD panel and monitor simultaneously by pressing <Fn> and <F8> again.

Each time you turn the computer, the active display depends on the settings in the setup menu. You can choose the active display from LCD panel, external monitor, or simultaneously display as you need.

> **Note:** The display controller in the Notebook supports the standard VGA mode which has a screen resolution of 640 x 480 pixels (screen dots). It displays 64 shades of gray on the LCD panel and 256 colors on an external monitor. Besides, it displays 256 of 226K colors on an eight-color STN panels.

Connecting An External Keyboard

The Notebook has a connection for a full-size enhanced 101/102-key keyboard of the type commonly used with desktop computers. The connector is for a PS/2-type keyboard. A keyboard adapter available from your dealer allows you to connect a keyboard that uses the larger jack which is standard to most desktop computers.

To connect a keyboard perform the following steps:

Step 1: Make sure the external keyboard is set to the "AT" or "80286" setting if there is one. There is usually a switch on the bottom of the keyboard for this. If there isn't such as with then either the keyboard you want to use is the wrong type or it doesn't need the switch. You'll have to connect it and see.

Step 2: Make sure the computer is turned off.

Step 3: If the keyboard has a PS/2 type connector, plug it into the keyboard connector port on the computer. 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 as shown in Figure 4-2.
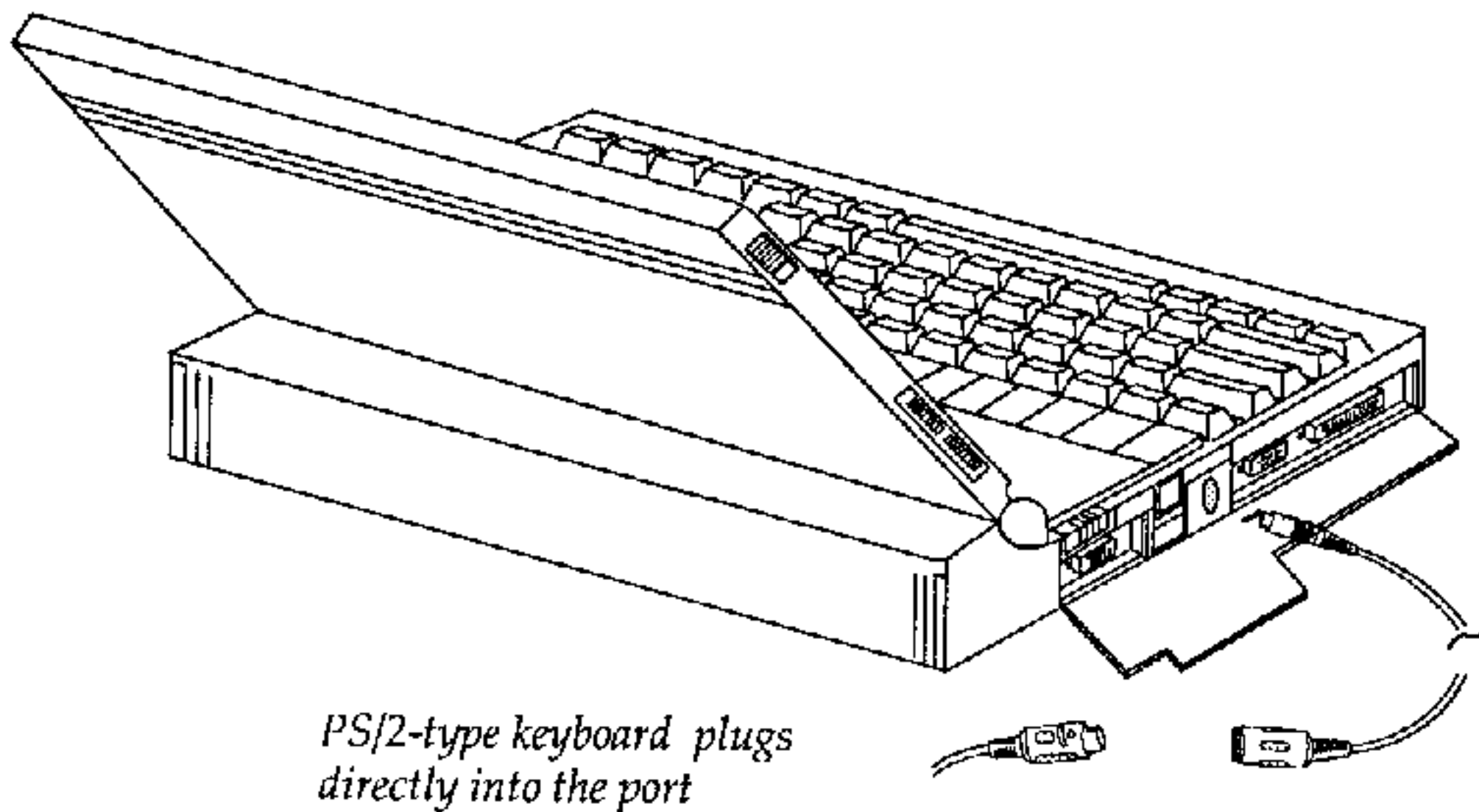
Notebook external keyboard connection

PS/2-type keyboard plugs
directly into the port

Figure 4-2

Section 5: The Power System

This section contains information on the Notebook's power system. The 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.

The battery pack is a set of nickel cadmium (Ni-Cd) batteries in a plastic shell. There are two packs inserted in the battery housing at the rear of the computer, one in the left and the other in the right.

In this section we'll go over how to use these and explain the software power saving features that are built into the computer.

The AC Adapter

The adaptor's primary function is to provide power to the computer. We've already seen how to connect it to the computer in Section 2 of the System Setup Guide. When the adapter is connected to the computer it provides power to it as long as it is plugged into an electrical wall outlet.

The adapter has a built-in indicator light. This green light will show when you plug the adapter into a power source. If this light does not come on, the adapter may not be properly connected, or it is not functioning.
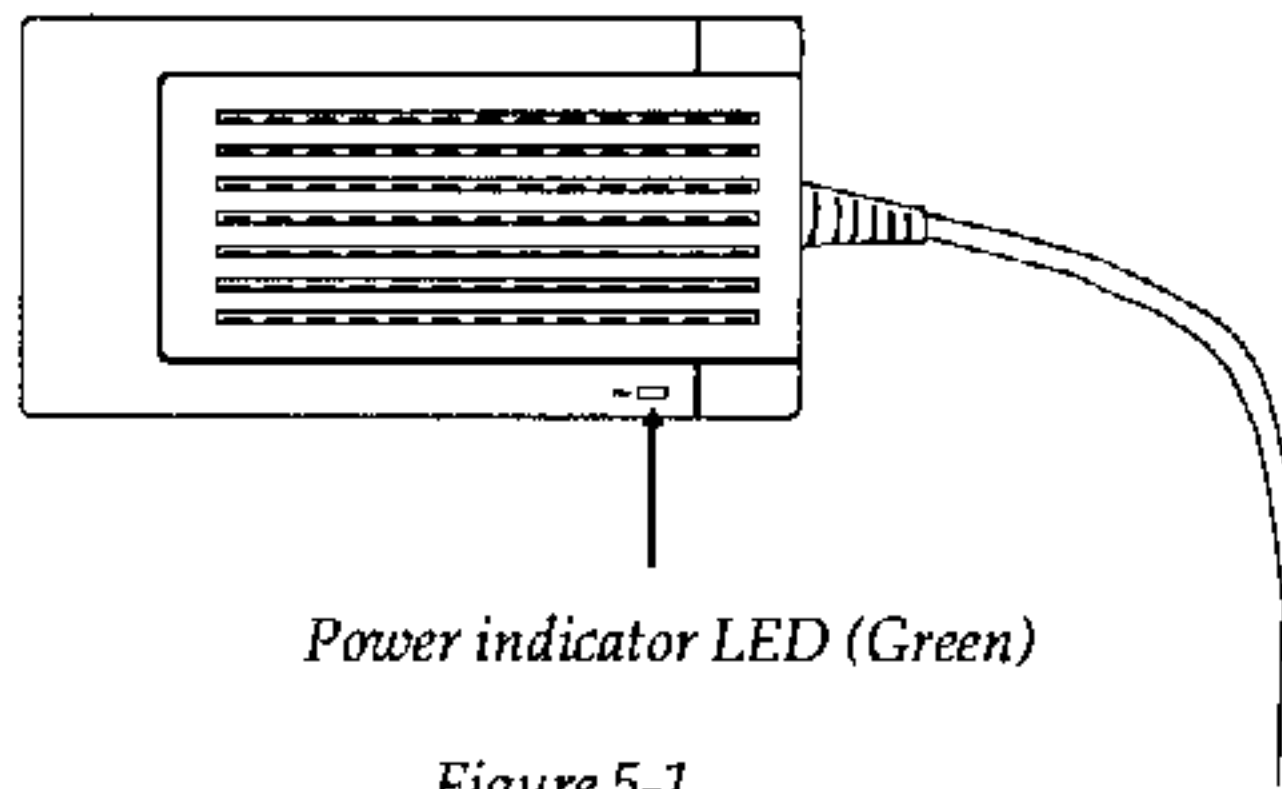
Notebook AC Power Adapter

Power indicator LED (Green)

Figure 5-1

Automatic Battery Pack Charging Function

The Notebook has two built-in rechargeable battery packs. As long as the AC adapter is attached to the computer, the battery packs will be charged automatically. When one pack is fully charged, the other will continue to be charged until it is also completely charged. The Battery A symbol and Battery B symbol in the system window (Ref. section 3) will indicate the battery status. More information on battery charging is in the next section.

The Battery Power System

The Notebook's Ni-Cd removable battery packs are inserted in the compartments that are seated at left and right rear sides of the computer, behind two access panels.

Two battery packs are already installed in the computer when you unpack it. Two fully charged packs will provide approximately 2.5 to 3.5 hours battery life to use before you have to recharge or replace the batteries. Additional battery packs can be purchased separately.
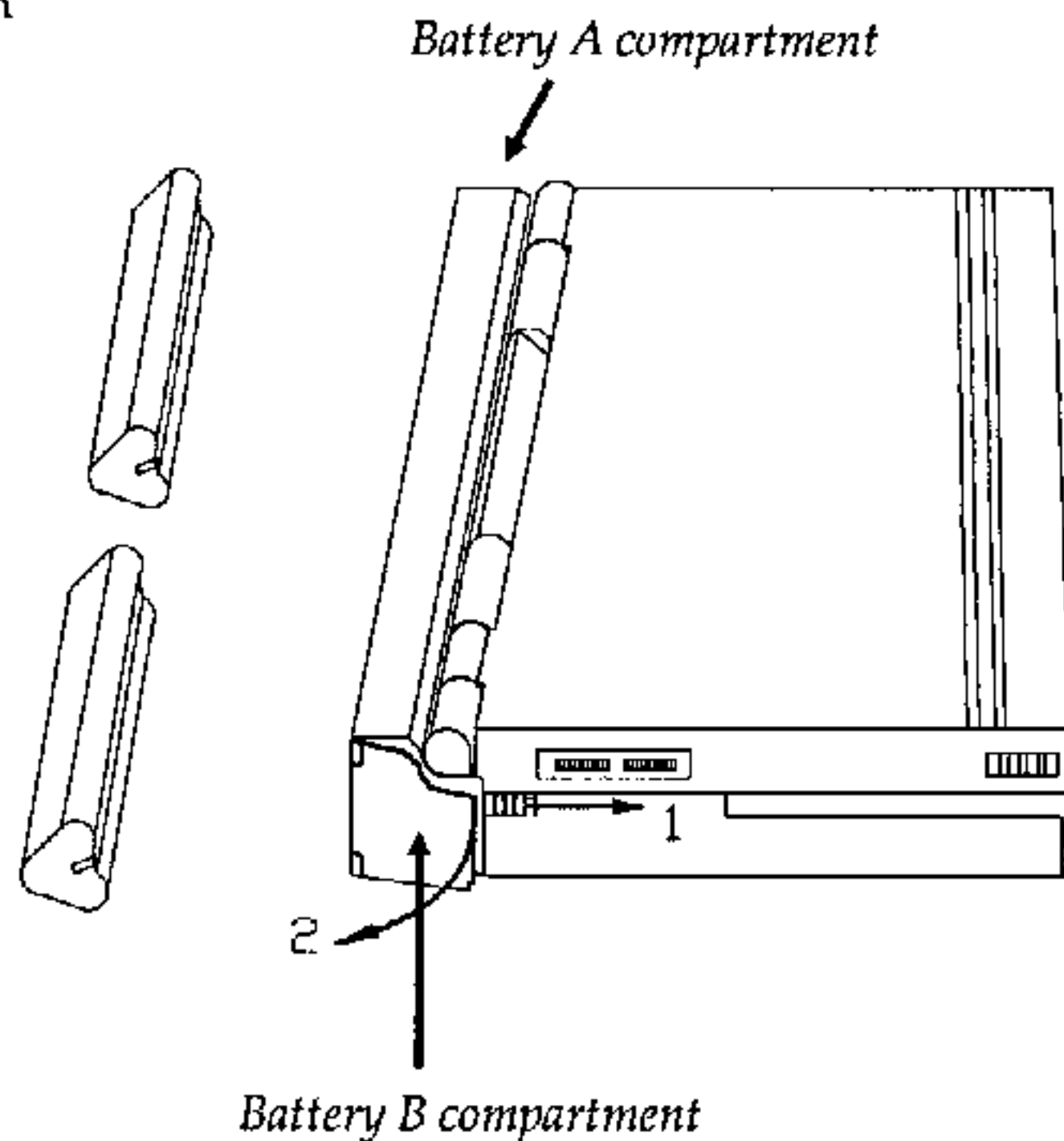
Notebook Battery System

Battery A compartment

Battery B compartment

Figure 5-2

Before you use the computer on battery power for the first time, check to make sure the battery is fully charged by referring to the information provided in the System Window display panel.

Charging The Battery

The Notebook charges the battery packs automatically as long as the AC adapter is attached to the computer. The charging process has no relation to the power switch. To charge the batteries perform the following steps:

Step 1: Make sure there is at least a battery pack in the compart -ment. Open the either compartment by sliding the latch backward which is in front of battery cover door, and then open the door.

Step 2: Attach the AC adapter to the computer as described earlier. Note, do not connect the adaptor if the computer is on and no battery is inside the compartment.

Opening the Battery Compartment
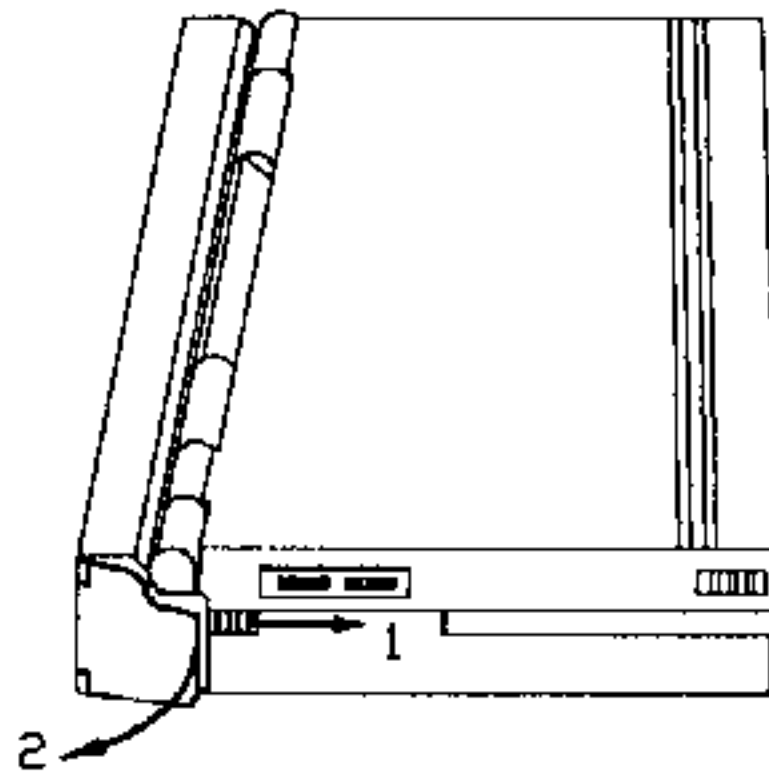
1. *Slide the latch backword from the battery cover*
2. *Then open the door*

Figure 5-3

If there is a battery in the compartment, close the cover.
If not (for example if you removed it and forgot to put it back in),
slide in a battery pack and close the housing cover.

Be sure to install the battery in the correct direction with the
contact pads facing the bottom surface of the compartment.
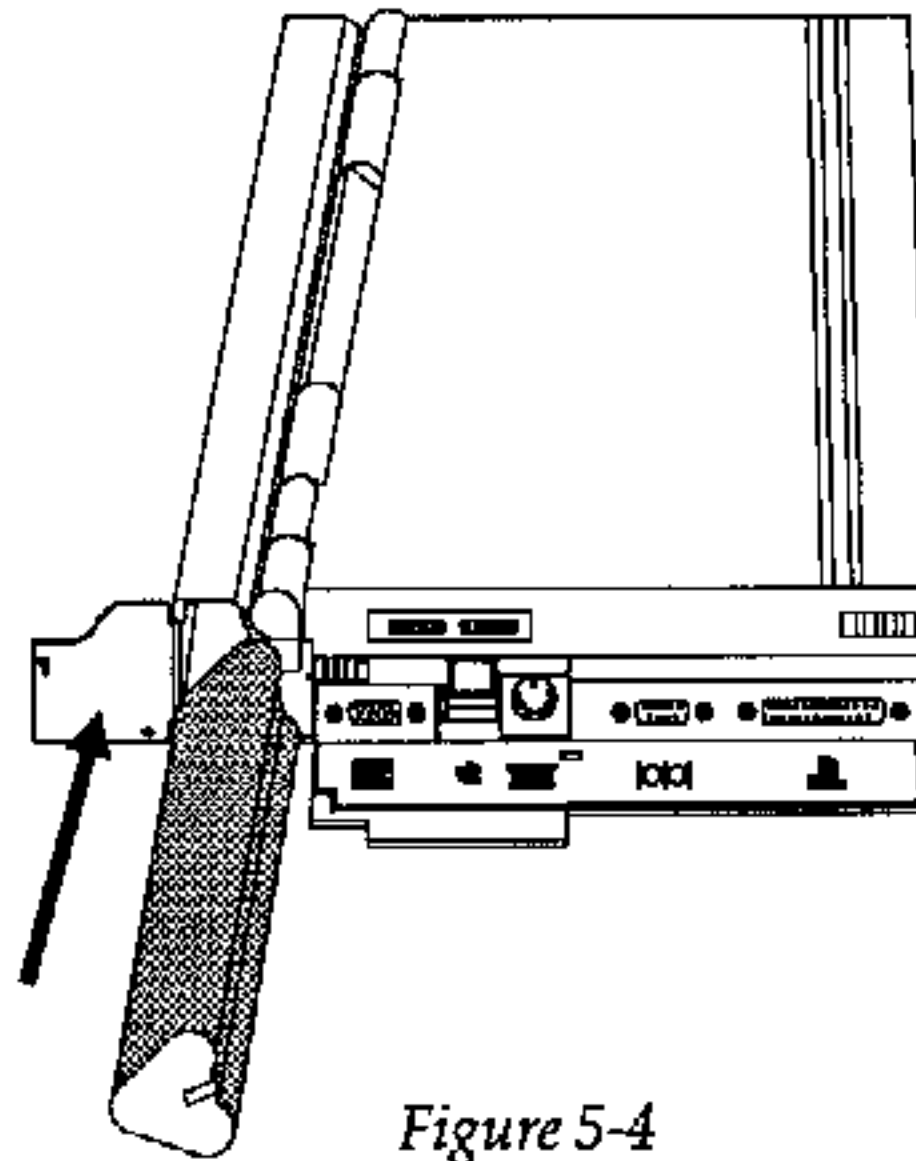
Inserting the Battery Pack

Figure 5-4

Step 3: Check the status of both Battery pack A and B on the System Window. If the Battery status does not light or flash, this indicates a problem. Check that all connections in the chain are secure. If you can't locate the problem, this condition may indicate a short somewhere either in the circuitry or the battery. Change the battery pack if you have a spare one to see if the problem persists.

Note: If there is still a problem, do not attempt to charge the battery. Consult your dealer for instructions.

Step 4: Charge the battery for about 2 hours for each pack. If possible, always charge the battery completely.

The computer will switch to charge the second battery automatically if the second battery is installed. When all battery packs in the computer are full, the charging process will automatically stop and you can see the status from the system window.

A timer safety feature stops the charging after 2.5 hours for each pack if the adapter has not automatically stopped charging. This prevents dangerous conditions from occurring if there is a fault somewhere in the charging circuitry.

Refreshing The Battery

When you use the batteries and repeatedly recharge them , after a period of perhaps 4 to 6 weeks you should completely discharge the batteries until the system will not run and then completely recharge them. This ensures that the batteries will give you optimum performance and always recharge completely.

If you notice that the battery life seems to be decreasing you should do this as soon as it is convenient.

Using Battery Power

The battery system will provide approximately 2.5 to 3.5 hours of power to the Notebook. This figure will vary depending on how you use the power saving features and your general work habits.

The system window will indicate the status of Battery packs A and B when you are using battery power. The patterns related to power on the system window has the following modes:

We recommend you use the AC power adaptor as often as possible to conserve your batteries and to limit their use to situations when plugging into an electrical wall outlet is not feasible, such as when traveling. Thus, when you are using the AC adaptor and system is on, the " ➡ " symbol will appear in the System Window screen. If the system is off and AC remains, the " ➡ " symbol will flash every 1 sec.

Various Battery Patterns:

Battery A's pattern is for the right rear side pack, while Battery B's pattern is for the left rear side pack. If you don't use the AC adaptor, the computer is using the battery power.

- When you use the batteries to supply power you may be confronted with any of the following symbols associated with the battery's power status:

  - Battery exists and is unused, the symbol appears like " ▣ "

  - Battery energy level is above "Low Battery" and in use, the pattern looks like " ▣ " (the inner bar flashes, with the frequency of On=3 sec. , Off=1 sec.)

  - Battery energy level is below "Low Battery" and in use, the pattern looks like " ▣ " (the inner bar and battery frame flash every 1 sec).

   – Battery energy level is below "Low Low Battery" and in use, the pattern looks like " ▦ " (the inner bar and battery frame flash every 0.25 sec, it's faster than "Low Battery").

   – Battery exists and empty, the symbol appears like " ▭ ".

   – No battery exists, the symbol disappears completely

• When you use AC adaptor to supply power

   – Battery exists and is under charging the pattern looks like " ▥ " (the inner bar flashes every 1 sec).

   – Battery exists and is finished charging, the pattern looks like " ▦ "

   – Battery exists and is not full, the pattern looks like " ▭ "

   – No battery exists the pattern is disappeared completely.

If your computer is installed with two battery packs, then when the first pack is exhausted and the second one runs into "low low battery" state, the system will be forced into suspend mode if the auto suspend is enabled (by system setup mode program) if it is not the case, you should press the suspend/resume button manually to go to "suspend mode" and connect the AC adaptor, or if you have an additional battery pack, install it.

To extend the battery use, we recommend you make full use of the power saving features built in the computer as discussed in the Power Management Section.

Small Battery For Real Time Clock

There is a built-in small battery pack to keep the system information. If you do not install any battery pack and also not run the computer with AC adaptor, then the maximum service time of this battery will be less than 10 days. Please avoid this condition by putting in at least one battery pack, or using the AC adaptor within 10 days.

WARNING:

Don't remove the battery pack which is under "IN USE" condition, otherwise, the system will lose the power and break down.

Power Management

Power Management Habits

When you use the computer with battery power it is important to develop power saving habits if you want to maximize the battery life. Although there are automatic power saving features you can activate, you can still improve on them by keeping power conservation in mind.

The AC Adapter

The most obvious way to conserve battery power is not to use it. Avoid using the battery when there is an available AC power source. The AC adapter is lightweight and compact. It is well worth of its weight to take along. If you use the adapter as much as possible, you'll ensure you have a charged battery whenever you really need it.

The Suspend / Resume Feature

One of the most useful non-automatic features is the Suspend/Resume button located to left of the Power Switch. If you will be shortly away from operative the computer, press this button, and it puts the computer into maximum power saving mode while still maintaining your work. Only when you press the button again, will the computer go back 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. You can turn COM port and the Modem port off using the SETUP Program. Turning these off when they aren't needed will additionally conserve battery power.

The Floppy Disk Drive

The floppy disk drive consumes a substantial amount of battery power. Try to avoid using the floppy drive when you are operating the computer on battery power.

Power Conservation Features

The computer has a number of automatic or adjustable power conservation features you can use to maximize the duration of the battery's charge. You can control many of these features through the 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 "Doze" and "Sleep" mode.

Doze Mode

Doze mode is automatic and initiates immediately any time you momentarily don't touch the computer. In doze mode the CPU speed is reduced and as a result components directly related to CPU function also automatically draw less power. This significantly cuts the amount of power the CPU draws. As soon as you use the computer, the CPU automatically reverts to the speed it was running at originally.

Sleep 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, the LCD screen and the screen backlight. Sleep mode occurs when you've stopped working on the computer after a certain amount of time, pressing any key will reactivate the computers operations.

Controllable Features

The Setup program allows you to control the amount of time before some power saving features will activate. Here, you set the interval in minutes using the Setup program controls as described earlier. The ranges you can use are as follows:

Hard Disk Drive Power Save Mode: 1 - 15 minutes
Doze Mode: 1 / 8 - 14 seconds
Sleep Mode: 1 - 15 minutes
LCD Panel Power Save Mode: 5 - 19 minutes

Setting an interval at disabled state prevents the feature from activating. You can set the modes to your requirements or style of work. Remember that the longer the interval, the less power will be conserved.

Reactivating From Power Saving Modes

Once the computer is in one of the power saving modes, the system will return to normal function in various ways depending on the component. From the user's point of view the computer reactivates almost as soon as you start to use it again.

The serial ports of the computer are activated by drivers stored in the circuitry of the computer. If you turn the ports off when you aren't using them this circuitry does not draw power, thus affording an additional saving. You must remember to enable the ports if you want to use them.

Section 6: Expansion Options

This section is for information purposes only and identifies what optional equipment you can add to the basic Notebook system. We use the term expansion here to signify items that are installed in side the computer rather standard equipment such as a printer, that you attach to the computer.

With the Notebook there are two expansion options that are part of the basic system. These are System Memory expansion and the optional Modems. You can also add a Numeric Coprocessor which performs on takes over (intensive) math calculation work. Some programs may require this device be installed in the computer before you can run that particular program.

If you are accustomed using Desk PC, putting the Notebook on a docking station, which is optional machine, is a good idea.

System Memory Expansion

The Notebook comes equipped with 2MB on board system memory. While this memory is sufficient for many or 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 make use of the special features of the 80386 microprocessors. Likely, these software programs will need the added random access memory space.

The Notebook provides three optional memory cards which you can additionally purchase and install. The three types of memory cards are 2MB, 4MB and 6MB. So, your system will have total 4MB, 6MB or 8MB. In the rest of this section we'll look first at the hardware design and them how to install the memory card.

System Memory Hardware

There are three special configured type of memory card 2MB, 4MB, 6MB.

There are four memory configurations as noted below.

	Bank 0	Bank 1	Bank 2	Bank 3
2MB on board	2MB	None	None	None
2MB on board + 2MB card	2MB	2MB	None	None
2MB on board + 4MB card	2MB	2MB	2MB	None
2MB on board + 6MB card	2MB	2MB	2MB	2MB

This is a dealer installed option. Consult your dealer for further information.

Fax/Modem

There is a compartment for the installation of an optional internal Fax/Modem or an external Data Modem. When installed, either modem has a port that is located at the left side of the computer.

A Fax/Modem is a composite device that performs both functions implied in the name. Data modems are used to transmit data between computers electronically over telephone lines. They do not directly produce "hard copy".

A fax (facsimile) machine transmits data in essentially the same way as a modem, but with the addition of a scanning device for input and a thermal printer for output. Thus one can send any information that is on paper that will go through the machine's scanner.

The fax part of a Fax/Modem is somewhat different. In a Fax Modem the scanning and printing functions are removed leaving the transmission hardware. The data transmitted is then generally taken in the form of files from the computer which are transmitted using software specially designed for the Fax/Modem.

The Data Modem is a standard 2400bps data modem that is compatible with the Hayes command set.

Fax/Modem is a dealer-installed option. Their documentation explains how to install and use them.

Adding A Numeric Coprocessor

The Notebook is designed so that an optional 80387SX numeric coprocessor can be installed in it. A numerical, or "math", coprocessor takes over the calculation intensive work from the 80386SX/486SLC microprocessor. This frees the microprocessor to perform other tasks. This results in a substantial increase in system performance, particularly when one uses calculation intensive applications such as spreadsheets or vector graphic (drawing) programs.

This is a dealer installed option. If you decide that your use of the computer indicates that a coprocessor would be beneficial consult your dealer for further information.

Adding a Docking Station

The Notebook is design so small as to be easy carried. If you are accoustomed at using Desk Top PC, you maybe use the Notebook uncomfortably. For this reason, a optional machine, named docking station is provided. When the Notebook is docked on the docking station, all connectors on the Notebook are transfored to the Docking Station. The all combined machine is indeed a Desk Top Personal Computer. The Docking Station also provides additional ID ports. The details see docking station's user manual.

Section 7: Travel Use & Maintenance

In this section we'll discuss some considerations when using the computer while traveling and some basic maintenance.

Preparing The Computer For Transport

To prepare the computer for transport you should first disconnect any peripherals you have connected to it. Make certain the computer is turned off before you do this. After you disconnect any peripherals close the port covers to protect the connectors.

The hard disk head in the computer is self-parking. You do not need to park it or otherwise prepare the hard disk for transport.

Close the computer and check that the screen housing is latched securely to the computer.

The computer comes with a soft carrying case. The supplied case will keep out dirt and dust and protect the housing from getting scratched.

If you intend to use battery power be sure to fully charge the battery pack and any spares before leaving. Remember the adapter charges the battery pack as long as the adapter is plugged into the computer.

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 particularly careful to avoid getting dirt and dust in the floppy disk drive.

Another obvious but very important point with such an easily transportable device is Don't Drop It. The computer is so light and easy to move you may be tempted to forget that although sturdy, it is still a sensitive electronic device. Although there is a good chance the hard disk would not crash, the impact could crack the case and damage other components.

Try to keep the keyboard as clean and dust free as possible. Avoid spilling liquids on it at all cost. Remember you are spilling liquid into the computer, not just onto the keyboard if you're not careful. You can vacuum 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 vacuum the ports occasionally to keep them clean.

Cleaning The Computer

Cleaning The Case

If the case of the computer 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, damp 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.

Appendix A: Problem Solving

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

The Power System

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

A. If your system is running off battery power, the batteries are probably completely exhausted. 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.

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

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

The Set Up

Q: When I turn on the computer the hard disk drive does not seem to work. What's wrong?

A: Access the SETUP program and make sure that the "Hard Disk 1" setting displays the correct setting for the computer's drive. If the setting is different the hard disk won't work properly or at all.

Set up information:

Hard Disk	Drive Type	CYL	HD	PRE	LZ	SEC	SIZE	
40MB	17	977	5	300	977	17	40	
60MB	19	1024	7	512	1023	17	59	
80MB	48	548	8	0	548	38	81	(Conner)
80MB	48	980	10	0	980	17	81	(Seagate)
80MB	48	981	10	0	981	17	81	(Maxtor)
120MB	49	980	15	0	980	17	122	(Seagate)
120MB	49	762	8	0	762	39	122	(Conner)
120MB	49	934	16	0	934	17	122	(Toshiba)
120MB	49	1024	14	0	1024	17	122	(Maxtor)
200MB	48	985	13	0	985	32	122	(Scagate)

Q. After I make changes in SETUP nothing happens. What's wrong?

A. Pressing the F6 in the Esc menu exits SETUP, but it does not write any changes to CMOS RAM. In order to save the changes you have made in SETUP, you must press F4 in Esc menu exits SETUP.

Booting Up

Q: When I turn the computer on, I can't get an operating system prompt to appear on the screen, although the computer seems to be running.

A: 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 won't, consult your dealer or technical support.

Q. When boot up, the computer tells me there is a memory mismatch error. How do I fix this?

A. Enter the Setup program and change the base memory default to 640 KB and check that all memory above 1024KB is entered in the "Extended Memory" field. If the memory installed is 2MB then the default is 1024KB.

The LCD Display

Q. I know the computer is on, but the LCD screen is blank. Is it broken?

A. Probably not. More than likely, either 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 switch 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.

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Press the space bar first to see if the computer is in Sleep 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, after all this, the screen remains blank consult your dealer for technical support.

Keyboard

Q: The cursor moves to different locations when I try to use the Pg Up, Pg Dn, End, or Home keys.

A: Remember that these keys share dual functions with the arrow keys. You must use the Fn key to access all functions that appear in blue on the front of the keys.

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

A: Make sure that the <Fn + Num Lock> 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.

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

A. The numeric keypad is enabled. Disable it by pressing the Fn and toggling Num Lock key. The Pad Lock light should go out.

I/O Connections

External Monitor

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

A. 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>.

Mouse or Other Pointing Device

Q: I connected a Mouse to the computer but it won't work? Why is this?

A: First make certain you followed the manufacturer's installation instructions completely and did everything necessary to install the mouse properly.

If you installed the mouse correctly and it doesn't work, check two things:

1. Make sure COM1/COM2 option on page 3 of the Setup Program is Tracking Ball/COM2.

2. Bind the device driver to COM1 if COM1/Modem is selected, or COM2 for setting Tracking Ball/COM2.

Appendix B: System Specifications

CPU

- CYRIX CX486SLC 25/33MHz for 486 Notebook only
- AMD 80386SXL 25MHz for 386 Notebook only
- Socket for 80387SX coprocessor

System Memory

- 2MB standard, expandable to 8MB
- Full support for LIM EMS 4.0

Fixed (Hard) Disk Drive

- 40, 60, 80, 120 or 200 MB HDD with 2 step power down

Floppy Disk Drive

- 3.5" 1.44MB floppy disk drive

Display

- 10" LCD panel spported (For Mono only)
- 8.5" LCD panel supported (For Color only)
- Paper white, non-glare CCFT backlit LCD
- 640x480 pixels resolution with 64 grey shades(For Mono only)
- 640x480 pixels resolution with 256 of 226K colors at 320x200 mode (For Color only)
- VGA compatible with EGA/CGA/MDA emulation
- Dual Scan Function provided

Keyboard

- 82/83 keys PC/AT compatible keyboard and embedded numeric keypad and special hot keys.
- A membrane provides 12 Function keys and NUM Lock, Scroll Lock, Cap Lock, ESC, PrtSc, and Break keys

External Interfaces

- 1 PC/AT compatible parallel port
- 1 PC/AT compatible RS232C serial port
- D15 external VGA monitor connector
- External keyboard connector for PS/2™ and PC/AT compatible keyboard
- Docking connector for Docking Station

System Window Patterns

- AC power in
- Battery A full/empty
- Battery B full/empty
- HDD/FDD in use
- MODEM Ring
- KEY PAD use
- Scroll Lock
- Num Lock
- Caps Lock

External controls

- Power on/off switch
- Brightness control
- Contrast control
- Suspend/Resume switch

Standard Accessories

- AC adapter
- Carry bag

Battery

- 2 Rechargeable Ni-Cd battery packs
- 2.5 operation hours*
- 3.5 - 4 hours fast charge*

Power Management

- System activity monitor
- Automatic transition between modes (active/doze/sleep)
- Other intelligent power management technology

Dimensions

- L11xW8.5xH1.65inch (L280xW216xH42mm)

Weight

- 5.5LB (2.5KG), including batteries

Options

- Internal FAX and/or Data modem
- Additional battery packs
- 2/4/6MB Memory card
- Track-ball
- Docking Station

Note: Specifications are subject to change without notice.

* may vary depending on operating temperature, battery condition, and power management features.

Appendix C: VGA Software Drivers and Utility

VGA Software Drivers and Utility

The system's support diskette contains several software drivers. They can provide improved resolution for the appropriate software application packages.

The drivers are all located in their own directories on the support diskette named \VGA\LOTUS, \VGA\PCAD, \VGA\WORD, and so on. A file named README.DOC on your support diskette (under the sub-disectory VGA) has instructions on how to install the drivers. You can view or print out the file and read those instructions before installing the drivers.

The Switcher Utility

On your support diskette you can find a program named SWITCHER.COM (\VGA \ CLUTILS \ SWITCHER.COM). This is a program which can be used to configure your VGA display options.

SWITCHER is a Terminate and Stay Resident(TSR) program. This means that when it is loaded, it stays resident in your system memory. So, after you executed SWITCHER, the program will then load into your memory, and remain resident until your system shutdown or reset, and can be invoked by keystrokes from keyboard.

The following table describes the various functions performed by SWITCHER and the keyboard commands necessary to invoke these function. The key acts as toggle switches, that means each keystroke scrolls through to the next state. Some of these options are only available in certain configurations.

Toggle Contrast Enhancement ON/OFF	Ctrl-Shift-A
Toggle Vertical Positioning Control	Ctrl-Shift-C
Toggle LCD/CRT/Simulscan	Ctrl-Shift-D
Toggle Expand mode ON/OFF	Ctrl-Shift-E
RGB weighting	Ctrl-Shift-G
Toggle Full Height Cursor ON/OFF	Ctrl-Shift-O
Toggle Reverse Video ON/OFF	Ctrl-Shift-R
Toggle Screen Power ON/OFF	Ctrl-Shift-S
Toggle Suspend Mode ON/O	Ctrl-Shift-U

The Vgaconf Utility

On your support diskette you can find a program named VGACONF.EXE (\VGA \ CLUTILS \ VGACONF.EXE). This is another program which can also be used to configure your VGA display options. This can be done in either of two ways: by using the interactive menu, or the DOS command line.

Using the VGACONF menu

To run the VGACONF utility and display menu of options, type:

        VGACONF[Enter]

To use the VGACONF menu options, move the cursor by means of the cursor (arrow) keys until the desired selection is highlighted. To make the actual selection by pressing the [Enter] key. Some menu selections will have sub-menus. To exit a VGACONF program at any time, press [Esc] key to get to the previous menu. Repeat this operation until you are at the main menu. Press [Esc] or select Quit to exit.

Select Option is the sub-menu where the user may change the option setting. Some options are designs for a specific display mode, that is, CRT, SimulSCAN, or Panel. The following options take effect only in panel mode: Contrast Enhancement, Vertical Position, Cursor, and Rgb. In SimulSCAN and panel modes, Reverse may be used. At any time set Dispaly, Bus width, and Inhibit Font. [Note: Bold font is not supported in this system]

Standby Timer is used in only panel mode. If the user would like the panel to shutdown automatically when there is no keyboard activity or no change on the display, then select the Timer, enter the number of minutes to wait before shutdown, Tab to the next field, enter a 'k' for keyboard activity or 'm' for video memory access, finally press the Page Down key to begin timer. Disable the standby timer by selecting Normal.

Using VGACONF from the DOS command line

To quickly change one or more VGA configuration settings, use the command line to invoke VGACONF without using the interactive menu. From the DOS prompt, type:

    VGACONF [options] [Enter]

where options is one or more option names separated by spaces, these names are listed and described below.

-? or -h	Help screen
s	Give status information
-n	Disable standby timer
-k=xx	Set standby timer for keyboard to xx minutes
-m=xx	Set standby timer for memory to xx minutes
ETDG	Enable text and disable graphics reverse video
NOREVERSE	Disable text and graphics reverse video
REVERSE	Enable text and graphics reverse video
DTEG	Disable text and enable graphics reverse video
ATTREMUL	Disable Automap
NOATTREMUL	Enable Automap
BKGND	Enable background enhancement
FRGRND	Enable foreground enhancement
BKFRGND	Enable background and foreground enhancement
EXPAND	Enable expand mode
NOEXPAND	Disable expand mode
CENTER	Center the screen on the panel
TOP	Align the screen on the top of the panel
BOTTOM	Align the screen on the bottom of the panel
PANEL	Switch the display to the panel
CRT	Switch the display to the CRT
SIMUL	Use the panel and the CRT simultaneously
16BIT	Enable 16-bit operations
NO16BIT	Force 8-bit operation
INHFONT	Inhibit font-loading when switching display
NOI	Allow font-loading when switching display
FULLHGT	Select full height cursor
NOFULLHGT	Select normal cursor
W259	Select RGB weighting 2:5:9
W529	Select RGB weighting 5:2:9
W295	Select RGB weighting 2:9:5
W592	Select RGB weighting 5:9:2
W925	Select RGB weighting 9:2:5
W952	Select RGB weighting 9:5:2

All VGACONF options can be abbreviated by typing only the first three characters in the names.

Appendix D: Internal track ball device driver

The support diskette contains the internal track ball device driver. The following explains how to install and configure the track ball device driver.

1. Install track ball device driver from the support diskette to the hard disk. Firstly, put the support diskette to Driver A and change directory to MOUSE. Then, execute the install.com file

   File name: INSTALL.com

2. Load the track ball driver before running the demo program and any application software.

   File name: MOUSE.com

3. Run the demo program under CGA 320x200 color mode only.

   File name: DEMO.exe

4. The default baud rate: 1200 bps

5. Test utility is supported to check the track ball hardware functions:

   File name: TEST.exe

6. Pop-up menu library: This library provides more than 14 pop-up menu utilities for the most popular application packages. For more information, please read the document file:

   File name: LIB.DOC

7. Please use PAGE.EXE to read document file

   Example: PAGE LIB.DOC

ENJOY YOUR MOUSE !!

Appendix E: APM Install Instructions

Instroduction

These instructions explain how to install and configure the device drivers needed to utilize APM functionality within DOS 5.0 and Windows 3.1.

Requirements

The following components are needed to implement APM within Windows 3.1 and DOS 5.0.

POWER.EXE   Power driver supplied by Microsoft. This driver provides APM support while in DOS 5.0.

Installation

Before installing and configuring the drivers, you need to install Windows 3.1. If it is already installed, you may need to make modifications in order to utilize APM functionality. Instructions are provided below.

If Windows 3.1 is not currently installed on your system:

Install Windows using the *Custom Setup* method. When you run the Windows Setup program, a screen appears with a list of components that Windows has determined match your system. Change the *Computer* field so that it displays *MS-DOS System with APM*. The Windows Setup program provides any help that you may need.

If Windows 3.1 is already installed on your system:

1. Go into the Windows directory (i.e. cd\WIN).

2. Type SETUP <enter>. A screen appears listing inforamtion about your system.

3. Check the Computer field and change the setting to *MS-DOS System with APM*.
    (The Setup screen provides information on how to change and save the setting.)

After Windows is property installed and configured. If you also want to utilize APM within DOS 5.0 you must also copy POWER.EXE to a desired directory on your hard drive.

After copying the files, you must edit CONFIG.SYS and add device lines. For example, if you copied the device drivers to the root directory on Drive c:, add the line as shown:

DEVICE=C:\POWER.EXE

> Power.exe is only needed if you want to utilize APM while in DOS 5.0. Earlier versions of DOS do not support APM. If you do not have DOS 5.0, you can still utilize APM within the Windows envirment.

Using the POWER.EXE in MS-DOS 5.0

In MS-DOS 5.0, user can use power command to manage the system power when applications and devices are idle. The power manager device driver conforms to the Advanced Power Management(APM) specification. The power device driver should be added into CONFIG.SYS file.

Syntax   DEVICE=[DRIVE:][PATH]POWER.EXE[ADV[:MAX|REG|MIN]|STD|OFF]

Parmeters [DRIVE:][PATH]
    Specifies the locations of the POWER.EXE file.

ADV[:MAX | REG | MIN]	Conserves power when applications and hardware devices are idle. In some cases, performance may be affected if an application is active instead of idle. Use max for maximum power conservation. Use reg, the default setting, to balance power convervation with application and device performance. Use min if the performance of an application or device is not satisfactory when you specify max or reg.
STD	Conserves power by using only the power management features of your computer hardware.
OFF	Turns off power management.

You can use POWER.EXE at DOS prompt to change parameters for power management setting. At DOS prompt when you type

```
C:\>POWER /?
```

The power driver will display all the available parameters as shown above. The following are some examples to change the power conservation parameters setting.

```
C:\>POWER ADV:MAX      ;change to most conservation level
C:\>POWER ADV:REG      ;change to average conservation level
C:\>POWER ADV:MIN      ;change to least conservation level
C:\>POWER STD          ;change to monitor hardware only
C:\>POWER OFF          ;turn power management off
C:\>POWER              ;query the power status only, but not
                       ;to change power conservation level
```

When you change the power management setting, the power status will display.

```
Power Management Status
Setting = ADV: MAX
CPU: idle 22% of time.
AC Line Status : OFFLINE
Battery Status : High
Battery life (%) :
75
```

The power management status displays:
1. Power management level setting : MAX, REG or OFF.
2. CPU idle time percentage.
3. AC Line Status : OFFLINE or ONLINE.
4. Battery Status : High, Low or Critical.
5. Battery life (%) : estimated remaining battery life.

Using the Windows Power Menus

Power

After installing and properly configuring Windows, the Windows Control Panel will include a Power icon.
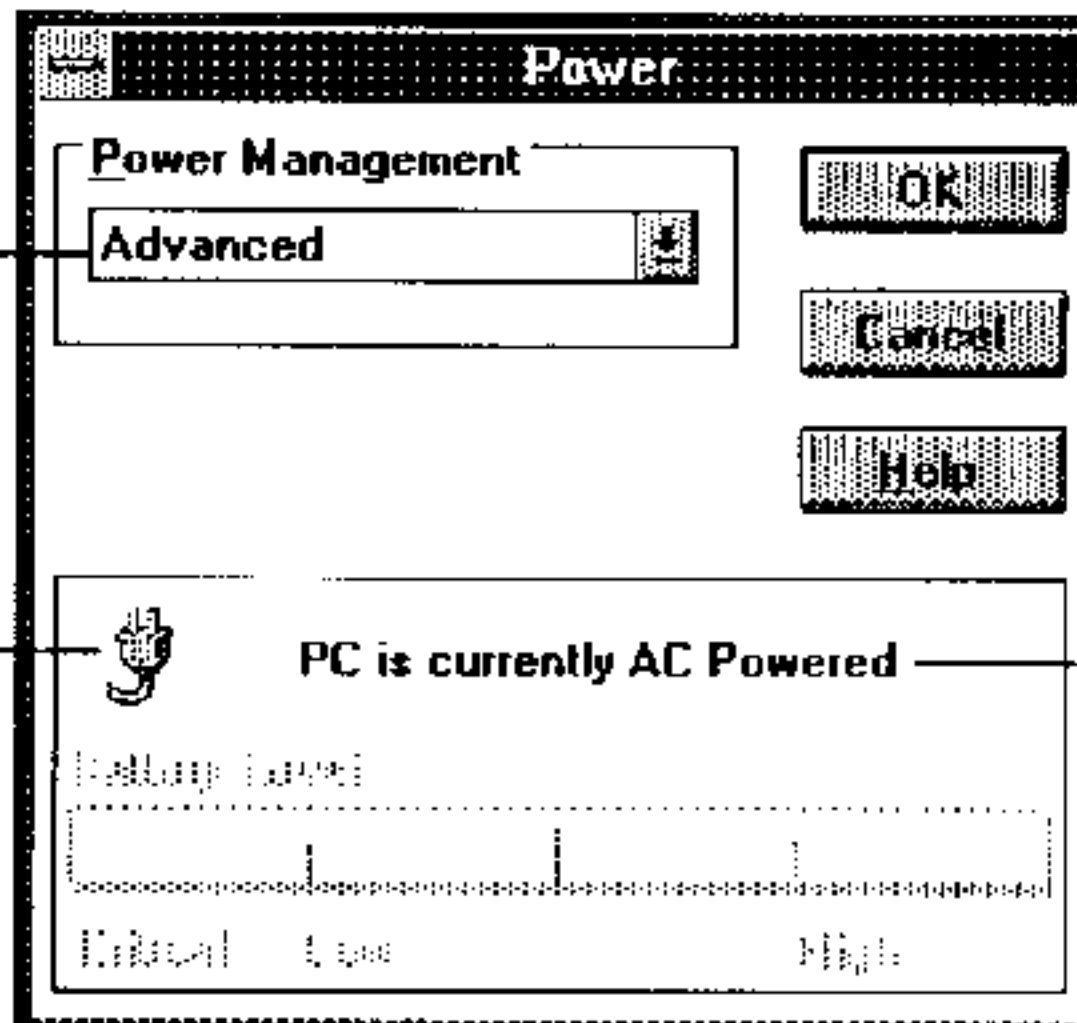
When you click on the Power icon, the Power Menu appears. You can see the following menu.

The following briefly describe the available power mamagement options. If you need additional help, click on the Help button or refer to your Microsoft documentation.

Lets you select the level of power management. Your devoices are:

Advanced	Provides advanced power management capabilities
Standard	Provides standard power management functions.
Off	Turns off power management. Use this option if your system is connected to an electrical outlet.

Power

Power Management

Advanced

OK

Cancel

Help

PC is currently AC Powered

Battery Level

Critical   Low   High

Displays battery status messages such as indicating whether the battery is charging or whether the system is AC or DC powered.

The icon that is displayed indicates what type of power the system is running on. This particular icon indicates the system is currently using AC power. If the system is using a battery, a battery icon is displayed.