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DECLARATION OF CONFORMITY
according to FCC Part 15

Responsible Party Name:	**Fujitsu PC Corporation**
Address:	**598 Gibraltar Drive Milpitas, CA 95035**
Telephone:	**(408) 935-8800**
Declares that product:	**Model: LifeBook L440-B. Complies with Part 15 of the FCC Rules.**

This device complies with Part 15 of the FCC rules. Operations is subject to the following two conditions: (1) This device must not be allowed to cause harmful interference, (2) This device must accept any interference received,including interference that may cause undesired operation.

David Woo	**Fujitsu**	**10/1/98**
FULL NAME	COMPANY	DATE

CAUTION

Changes or modification not expressly approved by Fujitsu PC Corporation could void this user's authority to operate the equipment.

FCC NOTICES

Notice to Users of Radios and Television

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates,uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions,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 that is on a different circuit than the receiver.**
- **Consult the dealer or an experienced radio/TV technician for help.**

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device.

Notice to Users of the US Telephone Network

The LifeBook™ L Series notebook computers are supplied with an internal modem which complies with Part 68 of the FCC rules. On this notebook is a label that contains the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment among other information. If requested, the user must provide their telephone company with the following information:

1. **The telephone number to which the notebook is connected.**
2. **The Ringer Equivalence Number (REN) for this equipment.**
3. **That the equipment requires a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant.**
4. **The FCC Registration Number.**

This equipment is designed to be connected to the telephone network or premises wiring using a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant and a line cord between the modem and the telephone network with a minimum of 26AWG.

The REN is used to determine the number of devices that you may connect to your telephone line and still have all of those devices ring when your number is called. Too many devices on one line may result in failure to ring in response to an incoming call. In most, but not all ,areas the sum of the RENs of all of the devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company.

If this equipment causes harm to the telephone network, your telephone company may discontinue your service temporarily. If possible,they will notify you in advance. If advance notice is not practical they will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC.

This fax modem also complies with fax branding requirements per FCC Part 68.

Your telephone company will probably ask you to disconnect this equipment from the telephone network until the problem is corrected and you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service telephones provided by your telephone company. Connection to party lines is subject to state tariffs. Contact your state's public utility commission,public service commission or corporation commission for more information.

This equipment includes automatic dialing capability. When programming and/or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in off-peak hours, such as early morning or late evening.

FCC rules prohibit the use of non-hearing aid compatible telephones in the following locations or applications:

- All public or semipublic coin-operated or credit card telephones.
- Elevators,highways, tunnels (automobile, subway, railroad or pedestrian) where a person with impaired hearing might be isolated in an emergency.
- Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
- Hospital rooms, residential health care facilities, convalescent homes and prisons.
- Workstations for the hearing impaired.
- Hotel,motel or apartment lobbies.
- Stores where telephones are used by patrons to order merchandise.
- Public transportation terminals where telephones are used to call taxis or to reserve lodging or rental cars.
- In hotel and motel rooms as at least ten percent of the rooms must contain hearing aid compatible telephones or jacks for plug in hearing aid compatible telephones which will be provided to hearing impaired customers on request.

DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

CET appareil numérique de la class B respecte toutes les exigence du Réglement sur le matérial brouilleur du Canada.

Notice to Users of the Canadian Telephone Network

The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

The LifeBook L Series notebook computers are supplied with an internal modem which complies with the Industry Canada certification standards for telecommunication network protection and safety requirements. Before connecting this equipment to a telephone line the user should ensure that it is permissible to connect this equipment to the local telecommunication facilities. The user should be aware that compliance with the certification standards does not prevent service degradation in some situations.

Repairs to telecommunication equipment should be made by a Canadian authorized maintenance facility. Any repairs or alterations not expressly approved by Fujitsu PC Corporation or any equipment failures may give the telecommunication company cause to request the user to disconnect the equipment from the telephone line.

The connecting arrangement code for this equipment is CA11A.

The Load Number is 2.7.

The Load Number assigned to each telephone terminal device denotes the percentage of the total load to be connected to a telephone loop or circuit which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices such that the total of the load numbers of all devices does not exceed 100.

CAUTION

For safety, users should ensure that the electrical ground of the power utility, the telephone lines and the metallic water pipes are connected together. Users should NOT attempt to make such connections themselves but should contact the appropriate electric inspection authority or electrician. This may be particularly important in rural areas.

Avis Aux Utilisateurs Du Réseau Téléphonique Canadien

L'étiquette canadienne Industrie Canada identifie l'équipement certifié. Cette certification signifie que l'équipement satisfait certaines normes de protection,d'exploitation et de sécurité des réseaux de télécommunications. Le département ne garantit pas le fonctionnement de l'équipement à la satisfaction de l'utilisateur.

La série LifeBook™ L possèdent un modem interne conforme aux normes de certification d'Industrie Canada pour protéger les réseaux de télécommunications et satisfaire aux normes de sécurité. Avant de connecter cet équipement à une ligne téléphonique,l'utilisateur doit vérifier s'il est permis de connecter cet équipement aux installations de télécommunications locales. L'utilisateur est averti que même la conformité aux normes de certification ne peut dans certains cas empêcher la dégradation du service.

Les réparations de l'équipement de télécommunications doivent être effectuées par un service de maintenance agréé au Canada. Toute réparation ou modification, qui n'est pas expressément approuvée par Fujitsu PC Corp., ou toute défaillance de l'équipement peut entraîner la compagnie de télécommunications à exiger que l'utilisateur déconnecte l'équipement de la ligne téléphonique.

Le code d'arrangement de connexion de cet équipement est CA11A.

Le numéro de charge est 2.7.

Le numéro de charge assigné à chaque terminal téléphonique indique le pourcentage de la charge totale pouvant être connecté à une boucle ou à un circuit téléphonique, utilisé par ce périphérique afin de prévenir toute surcharge. La terminaison d'une boucle peut être constituée de n'importe quelle combinaison de péri-phériques de sorte que le total de numéros de charge de tous les périphériques n'excède pas 100.

AVERTISSEMENT

Pour assurer la sécurité, les utilisateurs doivent vérifier que la prise de terre du service d'électricité, les lignes téléphoniques et les conduites d'eau métalliques sont connectées ensemble. Les utilisateurs NE doivent PAS tenter d'établir ces connexions eux-mêmes, mais doivent contacter les services d'inspection d'installations électriques appropriés ou un électricien. Ceci peut être particulièrement important en régions rurales.

UL NOTICE (FOR AUTHORIZED REPAIR TECHNICIANS ONLY)

CAUTION: For continued protection against risk of fire, replace only with the same type and rating fuse.

CAUTION:Danger of explosion if CMOS battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instruction.

WARNING: CMOS and NiCAD batteries may explode if mistreated. Do not recharge,disassemble or dispose of in fire.

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LifeBook L Series from Fujitsu

PREFACE

Incredibly sleek and stylish,the Fujitsu LifeBook L Series pushes the limits of innovation with its thin,light design, flexibility and proven reliability.

It is hard to believe a notebook this slim and light can pack so much power. From a fast Intel Pentium II processor to a large, bright 13.3" XGA TFT display, full DMI-compliance and fast internal modem,all the latest technology is included.

The LifeBook L Series comes in two configurations – a LifeBook with a Detachable Bay (L440-B) and a LifeBook without the Detachable Bay (L440). The L Series also offers your choice of Windows 95, Windows 98,and Windows NT 4.0 operating systems pre-installed.

This manual explains how to operate your LifeBook L Series' hardware and built-in system software. The LifeBook L Series is compatible with the IBM PC AT.

CONVENTIONS USED IN THE GUIDE

Screen examples in this manual are intended as examples only, and screen and file names may differ in actual use.

Messages displayed by the LifeBook L Series appear in `Courier` **type.**
Example: `Shutdown the computer?`

Keyboard keys are shown in boldface Helvetica type.
Example: Fn, F1, Esc, and Ctrl.

Pages with additional information about a specific topic are cross-referenced within the text.
Example: (*See page xx.***)**

POINT

The point icon highlights information that will enhance your understanding of the subject material.

CAUTION

The caution icon highlights information that is important to your safety, to the safe operation of your computer, or to the integrity of your files. Please read all caution information carefully.

LifeBook L Series from Fujitsu

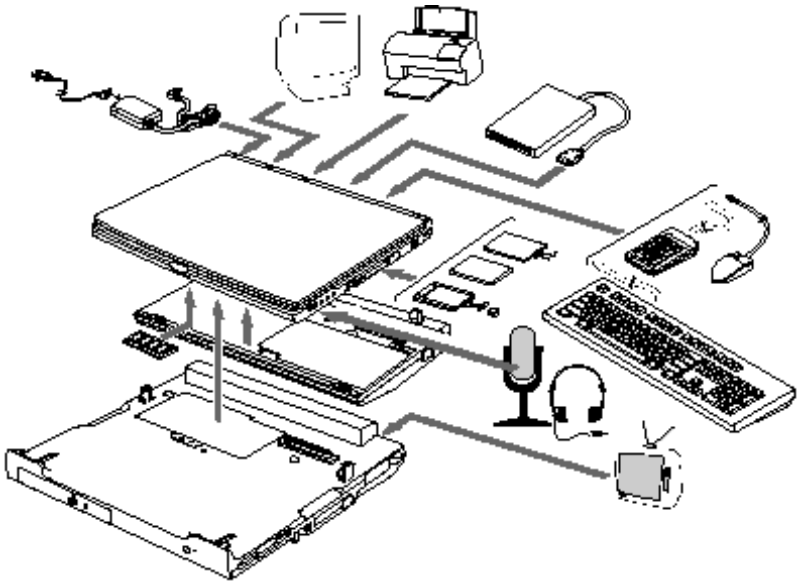

Figure P-1 LifeBook L Series with Samples of Fujitsu and Third Party Options and Accessories

Setting Up Your LifeBook L Series

SECTION ONE

SETTING UP YOUR LIFEBOOK L SERIES FROM FUJITSU

This section describes how to set up your LifeBook L Series from Fujitsu. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.

UNPACKING YOUR NOTEBOOK

When you receive your notebook,unpack it carefully, and compare the parts you have received with the items listed below.

Whether your model is the LifeBook with the Detachable Bay (L440-B) or without the Detachable Bay (L440), you should have:

- **LifeBook L Series from Fujitsu.** *(Figure 1-1.)*
- **AC adapter with AC power cord (located in the accessories box).** *(Figure 1-3.)*
- **Lithium ion Battery (installed in your notebook).**
- **RJ-11 cable (located in the accessories box).**
- **Getting Started Guide.**
- **User's Guide.**
- **Microsoft Windows Manual and Certificate of Authenticity.**
- **Registration card and customer information pack.**
- **Intel LANdesk Client Manager 3.2 CD-ROM coupon (located in the accessories box).**
- **Recovery CD-ROM (located in the accessories box).**
- **Fujitsu Accessories Catalog**

If your model is the LifeBook L440 you should also have:

- **Floppy Disk Drive.**

If your model is the LifeBook L440 with Detachable Bay (L440-B), you should also have:

- **Detachable Bay (docked to your notebook).** *(Figure 1-2.)*
- **Floppy disk drive (located in the accessories box).** *(Figure 1-4.)*
- **CD-ROM drive (installed in the Detachable Bay).**
- **Weight Saver bay device (located in the accessories box).** *(Figure 1-5.)*

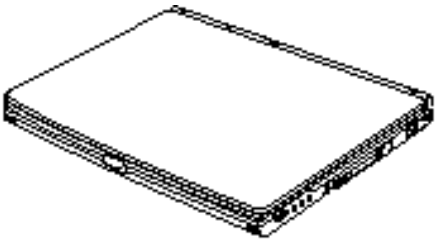

Figure 1-1 LifeBook L Series Notebook (L440)

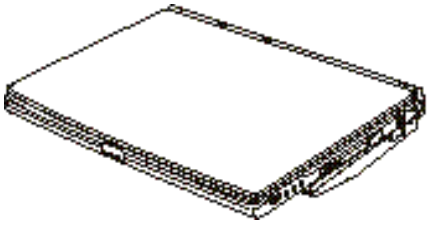

Figure 1-2 LifeBook L Series Notebook (L440-B)

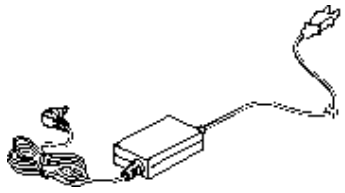

Figure 1-3 AC Adapter Unit

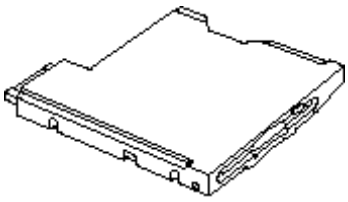

Figure 1-4 Modular Floppy Disk Drive (for Detachable Bay only)

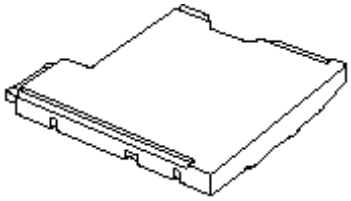

Figure 1-5 Weight Saver (for Detachable Bay only)

You may also have options other than those listed if you ordered them with your LifeBook L Series.Once you have checked and confirmed that your notebook system is complete, read through the following sections to learn about all of the components and features.

OVERVIEW OF LIFEBOOK L SERIES FEATURES

The LifeBook L Series is a compact, yet powerful notebook computer available with standard features including: *(See Appendix A, page 172, for detailed information.)*

- **266 MHz Intel Pentium II processor with MMX technology.**
- **32MB SDRAM standard, expandable to 160MB.**
- **13.3" active-matrix (TFT) color display with 1024 x 768 resolution (XGA).**
- **2MB EDO video RAM on video chip.**
- **Built-in 4.0 GB SMART hard drive.**
- **Internal Lithium ion battery.**
- **Hot swap PS/2 connection for an external keyboard or an external mouse.**
- **Built-in 56K v.90 modem.**
- **DMI 2.0 compliant.**
- **Integrated Touchpad pointing device for easy cursor control.**

CAUTION

Your internal modem is designed to allow faster downloads from v.90 compliant digital sources. Maximum achievable download transmission rates may not reach 56 Kbps and will vary.

CAUTION

The internal modems on all Fujitsu notebooks from Fujitsu PC Corporation are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries.

- **Hot Docking connection for a Detachable Bay or optional Mobile LAN Dock.**
- **Detachable Bay (standard on L440-B) with:**
  - **3.5" modular floppy disk drive.**
  - **20x modular CD-ROM drive.**
  - **Battery Bay (for optional second Lithium ion Battery).**
- **External 3.5" floppy disk drive (L440 only)**
- **Full audio and video features:**
  - **16-bit SoundBlaster Pro-compatible sound chip.**
  - **3D-Stereo for multiple speaker effects.**
  - **Zoomed Video support for full motion video acceleration (with Windows 95/98 only).**
  - **Two built-in stereo speakers.**
  - **Built-in mono microphone.**
  - **Stereo Line In jack.**
  - **Stereo Headphone jack.**
  - **Microphone jack.**
- **One Type II PC Card slot.**
- **Fast IrDA (4Mbps) compatible infrared port for wireless data transfer (with Windows 95/98 only).**

POINT

Zoomed Video cards, USB ports and infrared ports are not supported by Windows NT 4.0.

- **External monitor support with simultaneous display capability.**
- **"No learning", full-size keyboard with three dedicated Windows keys.**
- **One USB device port(with Windows 95/98 only).**
- **Standard pre-installed software:**
  - **Microsoft Windows 95, Windows 98 or Windows NT 4.0 operating system.**
  - **Phoenix Card Executive for PCMCIA card support (with Windows NT 4.0 only)**
  - **NoteDock for hot-docking/undocking support and hot-swapping in the Detachable Bay (with Windows NT 4.0 only).**
  - **LapLink from Traveling Software for file transfers via modem,cable or infrared port (with Windows 95/98 only).**
  - **PC-Doctor for system diagnostics.**
  - **SoftPEG for MPEG-1 video playing. (with Windows 95/98 only).**
  - **McAfee VirusScan for virus protection.**
  - **ESS AudioRack for 3D-Stereo, audio CD, and other audio controls (with Windows 95/98 only).**
  - **PowerPanel by Phoenix Technologies (Windows NT 4.0 and Windows 95) for system power management.**
  - **PMSet 98 for system power management (Windows 98 only).**
- **Standard user-install software.**
  - **Netscape Communicator 4.0.**
  - **America Online 3.0 Free Trial (with Windows 95/98 only).**
  - **AT&T Worldnet Service (with Windows 95/98 only).**
  - **Intel Landesk® Client Manager CD.**

POINT

McAfee VirusScan, PC-Doctor and Netscape Communicator are available on all 3 operating systems Windows 95, Windows 98 and Windows NT 4.0.

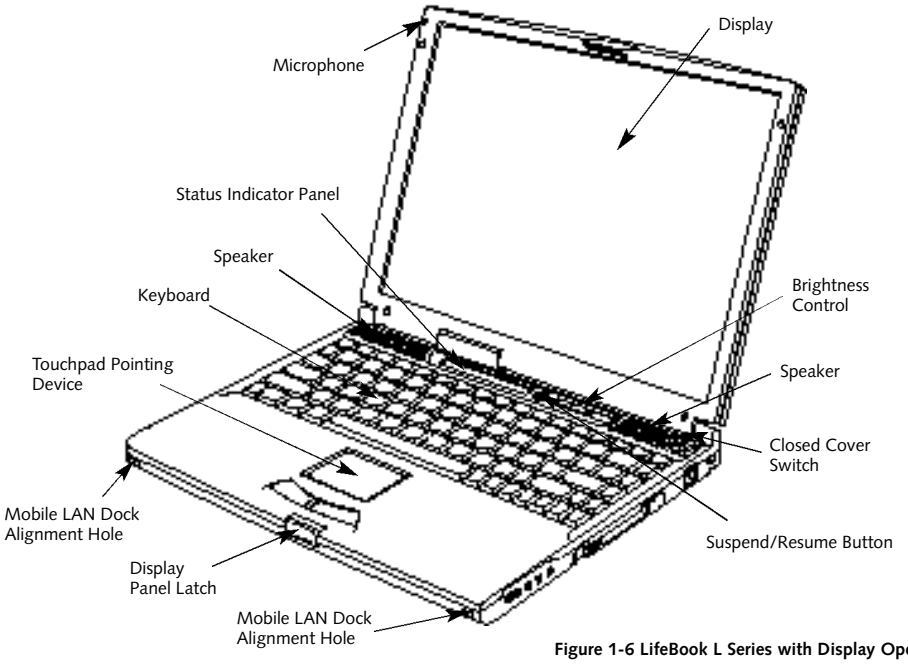

Figure 1-6 LifeBook L Series with Display Open

COMPONENT IDENTIFICATION

For detailed specifications refer to *Appendix A on page 172.*

TOP AND FRONT COMPONENTS

Display Panel

This is a color LCD panel with back lighting for the display of text and graphics. *(Figure 1-6.)*

Brightness Control

The brightness control adjusts the overall intensity of the display panel back lighting. *(Figure 1-6.)*

Built-in Microphone

The built-in microphone allows mono audio input to your notebook. *(Figure 1-6.)*

Status Indicator Panel

LCD display of the status of the power state and source, Suspend mode, AC connected/ disconnected, battery charge for both batteries, floppy disk drive activity, hard drive activity, CD-ROM drive activity, PC Card activity, CapsLock, NumLk and Scr Lk. *(Figure 1-6.)*

Suspend/Resume Button

The Suspend/Resume button allows you to suspend notebook activity without turning off the notebook power, and to return it to an active state. This feature saves power, and is particularly useful when the notebook is running only on battery power. *(See pages 45-46 and 100-102 for more information.)*

CAUTION

Be sure you know what settings are active for your Suspend/Resume button before you use it as misuse can result in data loss. *(See the Power Menu of the BIOS setup utility, pages 100-102, for more information.)*

Stereo Speakers

The built-in speakers output sound from the notebook. *(Figure 1-6.)*

Closed Cover Switch

The closed cover switch turns off the LCD back lighting when the display panel is closed, thus saving power. It can also be set as a Suspend/Resume switch in the BIOS Setup utility. (*see pages 106-107.***)** *(Figure 1-6.)*

Keyboard

A full-size keyboard with dedicated Windows keys for easy operation. *(Figure 1-6.)*

Touchpad Pointing Device

The touchpad pointing device is a finger contact cursor control system with two click buttons. *(Figure 1-6.)*

Display Panel Latch

This latch locks and releases the display panel. *(Figure 1-6.)* **When the display panel is released it pops up slightly to make it easier to open.**

Mobile LAN Dock Alignment Holes

Holes that allow your notebook to align and lock into an optional Mobile LAN Dock.

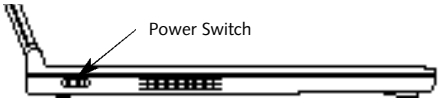

Figure 1-7 LifeBook L Series Left-side Panel

LEFT-SIDE PANEL COMPONENTS

Power Switch

This switch is the main power switch for your notebook. *(Figure 1-7.)*

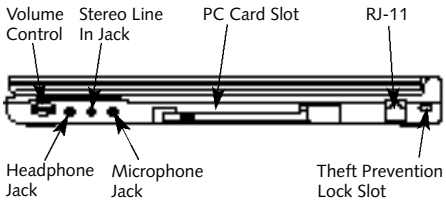

Figure 1-8 LifeBook L Series Right-side Panel

RIGHT-SIDE PANEL COMPONENTS

Theft Prevention Lock Slot

This is a slot that allows you to attach a physical lock down device. *(Figure 1-8.)*

PC Card Slot

The PC Card Slot allows you to install one type II PC Card. *(See pages 130-132 for more information on PC Cards.)* **The sliding button to the right of the card slot locks the card in**

place,and the push button to the left of the slot ejects the card from the slot. *(Figure 1-8.)*

RJ-11 Jack

This is the jack for attaching a telephone line to the internal modem. *(Figure 1-8.)*

Microphone Jack

The microphone jack allows you to connect an external mono microphone. *(Figure 1-8.)*

CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.

Stereo Line In Jack

The stereo line in jack allows you to connect an external audio source to your notebook,like an audio cassette player. This jack will not support an external microphone. *(Figure 1-8.)*

Headphone Jack

You can connect headphones or powered external speakers to the headphone jack. *(Figure 1-8.)*

Volume Control

The volume control is a knob which provides manual control of the sound level of all audio output from your notebook. *(Figure 1-8.)*

CAUTION

There are software volume controls. The knob setting and the software settings will interact. Software volume off will override the knob setting and the software volume setting will control the maximum knob setting. (See Volume Control on pages 34-35 for more information.)

REAR PANEL COMPONENTS

Infrared Port

The fast IrDA (4Mbps) compatible port allows you to communicate with another IrDA compatible infrared device without a cable. *(See page 44 for more information.) (Figure 1-9.)*

PS/2 Port

This port allows you to connect an external PS/2 mouse or keyboard. *(Figure 1-9.)*

USB Port

One port for direct connection to the Universal Serial Bus. This port allows you to connect devices such as external game pads, pointing devices, keyboards, printers, etc. that support the USB interface.

Parallel Port

The parallel port allows you to connect parallel devices, such as a parallel printer to your notebook. (This is also referred to as an LPT port.) *(Figure 1-9.)*

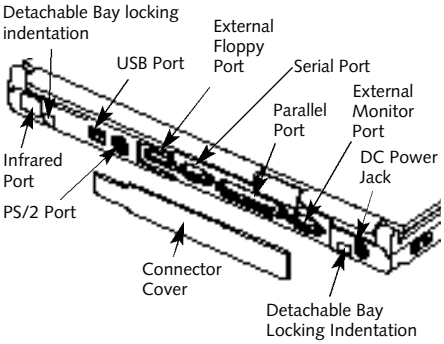

Figure 1-9 LifeBook L Series Rear Panel

External Monitor Port

This port allows you to connect an external VGA or SVGA monitor. *(Figure 1-9.)*

External Floppy Disk Drive Port

A port for attaching an optional external floppy disk drive. *(Figure 1-9.)*

Detachable Bay Locking Indentation

A pair of slots that mate with the Docking latches on the Detachable Bay. *(Figure 1-9.)*

DC Power Jack

The DC power jack allows you to plug in the AC adapter or the optional auto/airline adapter. *(Figure 1-9.)*

BOTTOM COMPONENTS

Docking Lock Slots

These slots mate with the latch hooks of a Mobile LAN Dock to lock the two units together. *(Figure 1-10.)*

Unit Label

This label has the model number and other information about your notebook. In addition the configuration portion of the label has the serial number and manufacturer information that exactly identifies the version of your notebook. *(Figure 1-10.)*

Docking Port

This port is for connection to a Mobile LAN Dock and to the Detachable Bay. The cover opens automatically when your notebook is installed in the Mobile LAN Dock or Detachable Bay. *(Figure 1-10.)*

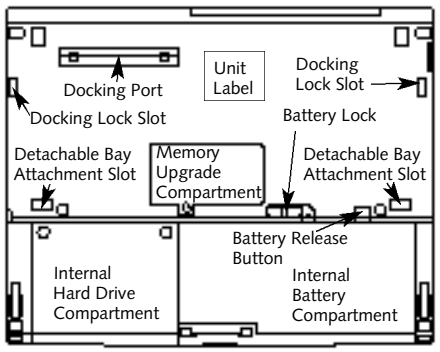

Figure 1-10 LifeBook L Series Bottom

Memory Upgrade Compartment

This compartment allows you access to the memory upgrade socket by which expansion of the system memory capacity is achieved. *(See pages 134-135 for more information on installing memory.) (Figure 1-10.)*

Internal Hard Drive Compartment

This compartment contains the internal hard drive and should only be accessed for maintenance by an authorized service provider. *(Figure 1-10.)*

Internal Battery Compartment
This compartment houses the internal battery and should only be opened to remove the battery for replacement or long term storage. *(Figure 1-10.)*

Battery Lock
This sliding lock secures a battery or battery cover in the Battery Bay. *(Figure 1-10.)*

Battery Release Button
Depressing this button allows the Battery Lock to slide from a locked position to an unlocked position. *(Figure 1-10.)*

Detachable Bay Attachment Slot
These slots accept the metal Docking Hooks on the front of the Detachable Bay*(Figure 1-10.)*

DETACHABLE BAY (MOBILE BAY UNIT)

DETACHABLE BAY COMPONENTS

Docking Latches
A pair of latches that secure the Detachable Bay to the back of the notebook. *(Figure 1-11.)*

Metal Docking Hooks
A pair of metal hooks which fit into the Detachable Bay attachment slots in the bottom of your notebook to attach your notebook and Detachable Bay together. *(Figure 1-11.)*

Battery Bay
A compartment in the Detachable Bay that allows an optional second Lithium ion Batttery to be installed for a dual battery configuration. *(Figure 1-11.)*

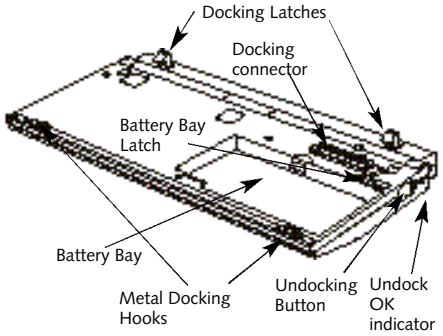

Figure 1-11 Detachable Bay Front and Right Side View

Battery Bay Latch
This latch is for locking or removing the Modular Lithium ion Battery from the Detachable Bay. Slide this latch to unlock position to release the 2nd battery. *(Figure 1-11.)*

Docking Connector
This allows connection to the Docking port in the bottom of your notebook. *(Figure 1-11.)*

Undock OK indicator
This indicator LED goes on when the Undocking Button is pressed and the Detachable Bay enters the status in which it can be disconnected from the notebook in hot-docking mode. *(Figure 1-11.)*

Undocking Button
Press this button for disconnecting the Detachable Bay from your notebook in hot-docking mode. *(Figure 1-11.)*

CAUTION

It is only safe to undock your notebook from the Detachable Bay when the Undock OK Indicator is illuminated green **and** the Windows operating system has informed you that it is safe to undock. It is always safe to undock when the power to the notebook is turned off by the power switch.

DETACHABLE BAY REAR AND LEFT SIDE COMPONENTS

Multi-Function Bay

This Bay allows you to install a CD-ROM drive, Floppy Disk drive, optional DVD drive, optional SuperDisk drive, or Weight Saver into the Detachable Bay. *(Figure 1-12.)*

CD-ROM Drive

The Modular CD-ROM drive is a 20x-speed maximum CD reader and comes installed in the Multi-function Bay. *(Figure 1-12.)*

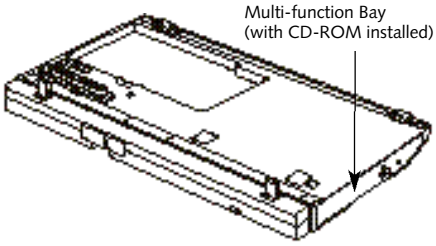

Figure 1-12 Detachable Bay Rear and Left Side View (shown with CD-ROM)

DETACHABLE BAY BOTTOM COMPONENTS

Docking Lock Switch

Slide this lever towards the Docking Latch Release Button to lock the Detachable Bay to the notebook. This position prevents the Docking Latch Release Button from being able to be pressed. Slide the lever away from the button to allow undocking.

Docking Latch Release Button

Depressing this button allows the Detachable Bay to be disconnected from the notebook.

Keyboard Tilt Feet

Open these feet out when using the Detachable Bay with your notebook. *(Figure 1-13.)*

Multi-Function Bay Release Switch

Depressing this button allows devices to be removed from the Multi-Function Bay *(Figure 1-13.)*

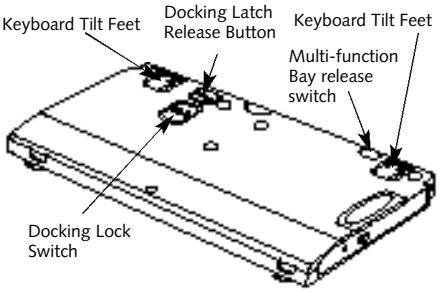

Figure 1-13 Detachable Bay (Mobile Bay Unit Unit) Bottom View (shown with CD-ROM)

Starting Your LifeBook L Series from Fujitsu

SECTION TWO

STARTING YOUR LIFEBOOK L SERIES FROM FUJITSU

This section describes the processes of starting your LifeBook for the first time,initial software setup and registration.

POINT

If you are using the Detachable Bay with your notebook, adjust the angle of the keyboard using the keyboard adjustment feet on the bottom of your Detachable Bay near the back. These feet flip down to raise the back of your notebook by about 6°, making it more comfortable to use the keyboard with your notebook. *(Figure 2-1)*

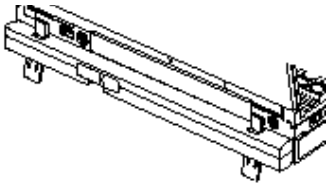

Figure 2-1 Adjusting the Keyboard Angle (L440-B only)

POWER SOURCES

Your notebook has five possible power sources: the primary Lithium ion battery; an optional dual Lithium ion battery configuration with the Detachable Bay; the AC adapter; an optional auto/airline adapter; or power from the optional Mobile LAN Dock.

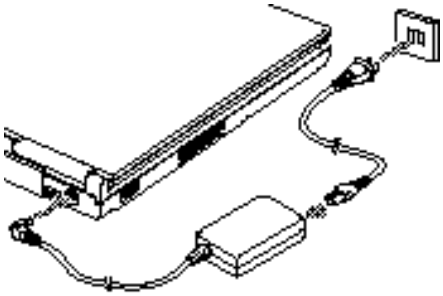

Figure 2-2 Connecting the AC Adapter

Connecting the Power Adapters

The AC adapter or an optional auto/airline adapter provides power for operating your notebook and charging the batteries. *(Figure 2-2.)*

To Connect the AC Adapter

1. **Plug the DC Output cable of the AC adapter into the DC Power jack on the rear left of your notebook.**
2. **Plug the AC adapter into an AC electrical outlet.**

To Connect the Optional Auto/airline Adapter

1. **Plug the DC Output cable into the DC Power jack on the rear left of your notebook.**
2. **Plug the auto/airline adapter plug into the cigarette lighter of a car or other vehicle with the ignition key in the On or the Accessories position or into the DC Power jack on an airplane seat.**

To Switch From AC Adapter Power
To Battery Power

1. **Be sure that you have at least one charged battery installed.**
2. **Remove the AC or auto/airline adapter.**

CAUTION

The primary Lithium ion battery is not fully charged when you purchase your notebook. Initially you will need to connect the AC adapter or the auto/airline adapter to use your notebook. If you purchase a second Lithium ion battery it will not be charged when you get it. You will need to charge it prior to use. It can take up to four (4) hours to charge a single battery if your notebook is turned off or is in Suspend mode. If your notebook is in use it can take up to nine (9) hours or more to charge a single battery.

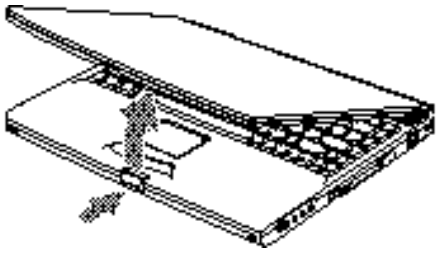

Figure 2-3 Opening the Display Panel

DISPLAY PANEL

Opening the Display Panel

Pressing the latch releases the top of the display panel from the front of the notebook body. Tilt the display panel backward until the screen is at a comfortable viewing angle. *(Figure 2-3.)*

Adjusting the Display Panel

Before you turn on your notebook, you may want to adjust the brightness level of the screen. Start with the brightness control slider (located directly under the display screen) in the middle position. *(Figure 2-4.)*

You may need to adjust the brightness level after you start your notebook and periodically for different operating environments.

POINT

The higher the brightness level, the more power the notebook will consume and the faster your batteries will discharge. To maximize battery life refer to section 7.

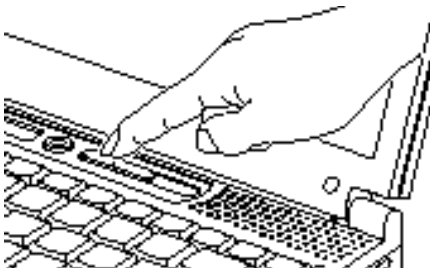

Figure 2-4 Adjusting the Display

STARTING YOUR NOTEBOOK FOR THE FIRST TIME

Power On

The power switch is located on the left side of your notebook. This switch is used to turn On the computer from its Off state.Once you have connected your AC adapter or have charged the internal Lithium ion Battery, you can power On your notebook.

CAUTION

The main Lithium ion battery is not charged when you purchase your notebook. Initially you will need to connect the AC adapter to use your notebook. If you purchase an optional second Lithium ion battery, it will not be charged when you get it, you will need to charge it prior to use.

Facing the keyboard and display panel,move the power switch towards the rear of your notebook. This is the On position. *(See Figure 2-5.)* **When you are done working you can leave your notebook in Suspend mode,** *(see pages 45 and 102)***, or you can turn it off. The power switch moved toward the front of your notebook is in the Off position.** *(See the section Power Off, pages 21-22, for the recommended shutoff procedures.)*

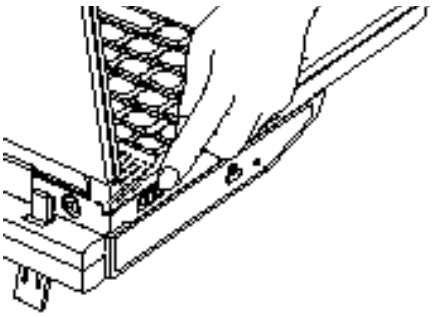

Figure 2-5 Power On

CAUTION

Do not carry your notebook around with the power on or subject it to shocks or vibration, as you risk damaging your notebook.

CAUTION

When you turn on your notebook be sure you have a power source. This means that at least one battery is installed and charged, or that the AC adapter or the auto/airline adapter is connected and has power.

When the power switch is turned on, your notebook carries out a Power On Self Test (POST) to check the internal parts and configuration. If a fault is found a beep will sound and/or an error message will be displayed. *(See Troubleshooting on pages 158-160)* **Depending on the nature of the problem you may be able to continue by starting the operating system or by entering the BIOS setup utility and revising the settings.**

After satisfactory completion of the Power On Self Test (POST) your notebook will load your operating system. *(See Boot Menu on pages 110-111 to see which kind of disk will be the source.)*

CAUTION

Never turn off your notebook during Power On Self Test (POST) or it will cause an error message to be displayed when you turn your notebook on the next time. *(See the Troubleshooting information on pages 158-160.)*

Booting the System with Windows 95

We strongly recommend that you do not attach any other external devices and do not put any CD or floppy disk in your drives until you have gone through the initial power on sequence.

When you turn on your notebook for the first time it will display a Fujitsu logo on the screen. If you do nothing the system will read the hard drive for the operating system software, flash the notebook configuration information on the screen, and load the Windows 95 Setup Wizard. You will then be stepped through the condition of use process. You must complete this initial process before you will be able to use your notebook. (If you wish to access the BIOS setup utility before you go through the condition of use process you must press the F2 key while the Fujitsu logo is still visible. If you press the Esc key while the Fujitsu logo is still present you will get a boot menu dialog box which will allow you to select which drive is to be used for finding the operating system.) If you turn off the power without using the on screen Cancel button you will get an error message when you start your notebook again.

Condition of Use Process

The first time you start your notebook you must confirm your acceptance of the copyright limitations for your pre-installed software. After you complete the Condition of Use process these screens will not appear again. There are 6 screens to read carefully and respond to.

You cannot **use your notebook until this Condition of Use process is completed. The bottom of each screen has a <Back button, a Next> Button and a Cancel button which are activated by the integrated TouchPad cursor control and button click. The <Back button will return you to the previous screen. The Next> button activates any choices or information you have entered and takes you on to the next screen. The Cancel button allows you to stop the setup process.**

If you stop the process your notebook will start up at the beginning of the Windows 95 Setup Wizard.

The screens you will be required to respond to are described with the required action.

User Information

Fill in your name and your company name as you want the software licensed. To step from the name blank to the company blank press the Tab key. When the information has been entered click on the Next> button. You will not be allowed to continue until you make an entry.

License Agreement

Read the agreement carefully. You can scroll through the text using the integrated TouchPad pointing device to activate the scroll bar or use the up arrow ↑ and down arrow ↓ keys to move up and down the text one line at a time,

or use the Page Up and Page Down keys to move the text one screen at a time. When you finish reading you must point and click to accept or reject the terms of the agreement and then click on the Next> button.

POINT

If you reject the terms of the license agreement you will be asked to review the license agreement for information on returning Windows 95 or to shut down your notebook.

Certificate of Authenticity

Look in the box that your notebook came in and you will find a Windows 95 Certificate of Authenticity shrink wrapped with the Windows 95 Users manual. On the certificate you will find a bar-code with a number above it. This is your product code and the number you should enter on the Certificate of Authenticity screen. When you have entered the number exactly as shown then click on the Next> button.

Start Wizard

The Start Wizard screen will appear if you have entered a valid product code. When you click on the Finish button the display will flash various screens as the system identifies what hardware is installed.

Time Zone

When your notebook has completely identified all of the installed hardware it will display a dialog box for entering which time zone you wish to set the clock to.

Printer Setup

When the messaging setup is complete a dialog box will appear for selecting which printer is to be attached to your notebook. You do not have to select a printer at this time. If you do not wish to select a printer, click on the Cancel button. If you do wish to select a printer click on the Next button and answer the questions.

Windows 95 Setup

Once you have completed the printer setup, or if you have chosen not to set up a printer at this time, you will see the Windows 95 Setup screen. This screen lets you set up Internet Explorer 4.01 with Active Desktop on your Lifebook. Follow the on-screen direction to complete installation of IE 4.01

POINT

If you would like to skip the installation of Internet Explorer 4.01, go to the Start Menu on the desktop, select Shutdown and Restart the computer. After returning to Windows, you can install Internet Explorer 4.01 at any time by selecting the icon Setup for Internet Explorer 4.01 in the Internet Starts Here folder on the desktop.

Booting the System with Windows 98

We strongly recommend that you do not attach any other external devices and do not put any CD or floppy disk in your drives until you have gone through the initial power on sequence.

When you turn on your notebook for the first time it will display a Fujitsu logo on the screen. If you do nothing the system will read the hard

drive for the operating system software, flash the notebook configuration information on the screen, and then the Windows 98 Setup Wizard Screen will appear. You will then be stepped through the condition of use process. You must complete this initial process before you will be able to use your notebook. (If you wish to access the BIOS setup utility before you go through the condition of use process you must press the F2 key while the Fujitsu logo is still visible. If you press the Esc key while the Fujitsu logo is still present you will get a boot menudialog box which will allow you to select which drive is to be used for finding the operating system.) If you turn off the power without using the on screen Cancel button you will get an error message when you start your notebook again.

Condition of Use Process

The first time you start your notebook you must confirm your acceptance of the copyright limitations for your pre-installed software. After you complete the Condition of Use process these screens will not appear again. There are 6 screens to read carefully and respond to.

You cannot use your notebook until this Condition of Use process is completed. The bottom of each screen has a <Back button, a Next> Button and a Cancel button which are activated by the integrated ErgoTrac cursor control and button click. The <Back button will return you to the previous screen. The Next> button activates any choices or information you have entered and takes you on to the next screen. The Cancel button allows you to stop the setup process.

If you stop the process your notebook will start up at the beginning of the Windows 98 Setup Wizard.

The screens you will be required to respond to are described with the required action.

User Information

Fill in your name and your company name as you want the software licensed. To step from the name blank to the company blank press the Tab key. When the information has been entered click on the Next> button. You will not be allowed to continue until you make an entry.

License Agreement

Read the agreement carefully. You can scroll through the text using the integrated ErgoTrac or TouchPad pointing device to activate the scroll bar or use the up arrow ↑ and down arrow ↓ keys to move up and down the text one line at a time, or use the Page Up and Page Down keys to move the text one screen at a time. When you finish reading you must point and click to accept or reject the terms of the agreement and then click on the Next> button.

POINT

If you reject the terms of the license agreement you will be asked to review the license agreement for information on returning Windows 98 or to shut down your notebook.

Product Key

Look in the box that your notebook came in and you will find a Windows 98 Certificate of Authenticity shrink wrapped with the Windows 98 Users manual.On the certificate you will find a bar-code with a number above it. This is your product key and the number you should enter on the Product Key screen. When you have entered the number exactly as shown then click on the Next> button.

Start Wizard

The Start Wizard screen will appear if you have entered a valid product key. When you click on the Finish button the display will flash various screens as the system identifies what hardware is installed.

Time Zone

When your notebook has completely identified all of the installed hardware it will display a dialog box for entering which time zone you wish to set the clock to.

Printer Setup

When the time zone setup is complete a dialog box will appear for selecting which printer is to be attached to your notebook. You do not have to select a printer at this time. If you do not wish to select a printer, click on the Cancel button. If you do wish to select a printer click on the Next button and answer the questions.

Welcome to Windows 98

When you boot into Windows 98 for the first time you will see a Welcome to Windows 98 dialog box with several options. Select the first option, Register Now, to register your LifeBook L Series notebook. *(See page 20 in this section for details on registering your notebook in Windows 98.)*

Booting the System with Windows NT 4.0

We strongly recommend that you do not attach any other external devices and do not put any CD or floppy disk in your drives until you have gone through the initial power on sequence.

When you turn on your notebook for the first time it will display a Fujitsu logo on the screen. If you do nothing the system will read the hard drive for the operating system software, flash the notebook configuration information on the screen,and then the Windows NT 4.0 Setup Wizard Screen will appear. You will then be stepped through the condition of use process. You must complete this initial process before you will be able to use your notebook.(If you wish to access the BIOS setup utility before you go through the condition of use process you must press the F2 key while the Fujitsu logo is still visible. If you press the Esc key while the Fujitsu logo is still present you will get a boot menu dialog box which will allow you to select which drive is to be used for finding the operating system.) If you turn off the power without using the on screen Cancel button you will get an error message when you start your notebook again.

Condition of Use Process

The first time you start your notebook you must confirm your acceptance of the copyright limitations for your pre-installed software. After you complete the Condition of Use process these screens will not appear again. There are 6 screens to read carefully and respond to.

You cannot **use your notebook until this Condition of Use process is completed. The bottom of each screen has a** `<Back` **button, a** `Next>` **Button and a** `Cancel` **button which are activated by the integrated ErgoTrac or TouchPad cursor control and button click. The** `<Back` **button will return you to the previous screen. The** `Next>` **button activates any choices or information you have entered and takes you on to the next screen. The** `Cancel` **button allows you to stop the setup process.**

If you stop the process your notebook will start up at the beginning of the Windows NT Workstation Setup.

The screens you will be required to respond to are described with the required action.

License Agreement

Read the agreement carefully. You can scroll through the text using the integrated ErgoTrac or TouchPad pointing device to activate the scroll bar or use the up arrow ↑ and down arrow ↓ keys to move up and down the text one line at a time, or use the Page Up and Page Down keys to move the text one screen at a time. When you finish reading you must point and click to accept or reject the terms of the agreement and then click on the `Next>` **button.**

POINT

If you reject the terms of the license agreement you will be asked to review the license agreement for information on returning Windows NT Workstation or to shut down your notebook.

Windows NT Setup

The Windows NT Setup screen appears after you accept the license agreement. This setup wizard will guide you through the setup of your Windows NT Workstation.

Name and Organization

Fill in your name and the company name as you want the software licensed. To step from the name blank to the company blank press the Tab key. When the information has been entered click on the `Next>` **button. You will not be allowed to continue until you make an entry.**

Registration

Look in the box that your notebook came in and you will find a Windows NT Workstation Certificate of Authenticity shrink wrapped with the Windows NT Workstation Users manual. On the certificate you will find a bar-code with a number above it. This is your product ID and the number you should enter on the Registration screen. When you have entered the number exactly as shown then click on the `Next>` **button.**

Computer Name

You need to enter a name for your computer to be identified by on the network. This must be a unique name and must be 15 characters or less. Enter a name for your computer to be identified by and click on the `Next>` **button.**

Administrator Account

This screen lets you setup a password for the Administrator account on your notebook. The administrator account has authority over all user accounts. You must not forget this password. If you do not wish to have password protection on your administrator account you can leave this screen blank. When you have entered and confirmed your password click on the `Next>` **button.**

Windows NT Setup

Once you have setup your computer name and your administrator account you can click on the `Next>` **button to finish the Windows NT Workstation setup and begin installing Windows NT networking. This will take your notebook a few seconds and you will need to reboot the system when it is complete.**

POINT

Make sure you have connected a phone line to your modem before you use E-Registration.

CAUTION

You will find a Recovery CD-ROM packet in your accessories box. Please store the packet in a safe place in case there is a loss of data, and it becomes necessary to re-install your operating system and/or application programs. (*See Restoring Your Pre-installed Software from the Recovery CD-ROM on pages 162*)

REGISTERING YOUR LIFEBOOK

What are the benefits of registering?

You will receive an identification label for your LifeBook, which,if your LifeBook is ever lost, may help in getting it returned to you. You also receive priority Personal Identification Number (PIN) technical support access and useful product mailings. Proof of purchase is not required if you register within 30 days of your purchase.

How do I register?

For Windows 95 and Windows NT, you can register your system by modem by clicking on the Fujitsu Welcome Center icon on your desktop. Complete the electronic form and click on the "send registration" button. Your registration information will be transmitted via phone lines to the Fujitsu Registration Center and you will receive registration confirmation in one week to 10 days.

For Windows 98, you can access the E-Registration program by selecting the Register Now option in the Welcome to Windows 98 wizard menu. This menu appears the first time you start Windows 98 after completing the Condition of Use process. To access the Welcome to Windows 98 wizard anytime, double-click on the Welcome to Windows 98 icon on your desktop. You can send your registration through modem or Ethernet line.

You may also print your completed registration form and fax it to 1-949-450-9140 or mail it to:
Fujitsu PC Corporation
15355 Barranca Pkwy, Irvine,CA 92618-9520

Alternately you may call:
1-800-8fujitsu (1-800-838-5487)

POINT

You can register your LifeBook L Series notebook with any operating system via e-mail, telephone or fax.

LEARNING ABOUT YOUR OPERATING SYSTEM AND APPLICATION SOFTWARE

Tutorials

All operating systems and most application software have tutorials built-in. We highly recommend that you step through your tutorial before you use an application even if you are familiar with the same application on a different machine,an earlier version of the application, or a similar product.

Manuals

In the accessories box you will find manuals for your installed operating system and other pre-installed software.

Software manuals of pre-installed software that are not in the accessories box are available online. See the help screens of your pre-installed software. We recommend that you review these manuals for general information on the use of these applications and to get a basic understanding of what is covered in the manual, and how it is organized, should questions arise as you use the applications.

Links to Fujitsu On-line

You can go directly to the on-line Fujitsu Accessories catalog for your notebook by clicking on the LifeBook Accessories website URL link in the Windows Start menu. This will take you to the Web site for Fujitsu Lifebook accessories.

You can also reach Fujitsu Service and support on-line by clicking on the Fujitsu Service and Support Web site URL link in the Service and Support Software folder in the windows start menu.

POINT

You must have an active internet connection to use on-line URL links described above.

POWER OFF

Before turning off the power by putting the power switch in the Off position, check that the Hard Drive,CD-ROM,PC Card and the Floppy Disk Drive Access indicators are all Off. *(See*

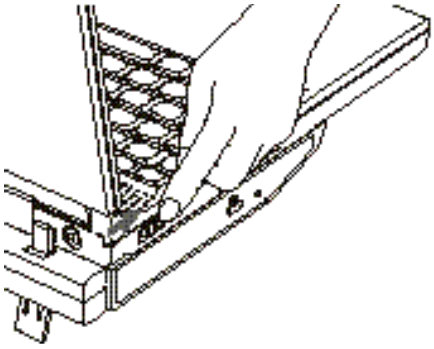

Figure 2-6 Power Off

CAUTION

Never turn your notebook off while an application is running. Be sure to close all files, exit all applications and shut down your operating system prior to turning off the power with the power switch. If files are open when you turn the power off, you will lose any changes that have not been saved, and may cause disk errors.

Figure 2-6, page 21.) **If you turn off the power while accessing a disk or PC Card there is a risk of loss of data. The Off position is reached by facing the keyboard and display panel,and moving the switch toward the front of your notebook. To assure that your notebook shuts down without error, use the Windows shut down procedure.**

Shutting down your notebook from Windows lets your notebook shut down operations,and turn off the power in the proper sequence to prevent errors. The sequence is:

1.Go to the Start button menu.

2. Click on Shut Down.

3. Verify that Shut Down **is selected and click on** Yes **.**

If you are going to store your notebook for a month or more,take the following precautions:

1. Remove any CD and/or floppy disk.

2. After shutting down from Windows turn off your notebook using the power switch.

3. Close your notebook display panel.

4. Disconnect the AC adapter.

5. Remove the batteries and store them separately in a cool dry place.

POINT

When your notebook has been shut down from Windows, it is not the same as being turned off from the power switch. It is in a pseudo-off state, with all applications closed, but can and must be turned on by pressing the Suspend/ Resume button. It is drawing some current in the pseudo-off state.

RESTARTING THE SYSTEM

When you wish to restart your system be sure that you follow the proper procedure. The procedure is as follows:

1.Go to the Start button menu.

2. Click on Shut Down.

3. Click on Restart

4. Verify that Restart **is selected and click on** Yes.

Windows will shut down and restart your notebook.

POINT

You may also select Shut Down and once the power is off for 10 seconds or more you can restart your notebook with the Suspend/Resume button, or once the power is off, turn the power switch to Off for 10 seconds and then switch it to On. These alternative methods are not recommended.

CAUTION

Turning off the power switch without exiting Windows may cause an error when you start the next time. Turning the power to On when it has been Off for less than ten seconds may cause an error when you start the next time.

Using Your LifeBook L Series from Fujitsu

SECTION THREE

USING YOUR LIFEBOOK L SERIES FROM FUJITSU

This section describes the indicators, buttons, connections and operating modes of your LifeBook L Series and their use.

STATUS INDICATOR PANEL

The Status Indicator panel is located in the recess just above the keyboard. (*Figure 3-1)* The appropriate indicators become visible as you use your notebook.

Power Indicator

The Power Indicator tells you when the system is operational. It is on steady when there is power to your notebook, and blinks when the system is in Suspend mode. It goes off when the system has entered Save-to-Disk mode, or the power is turned off from the power switch.

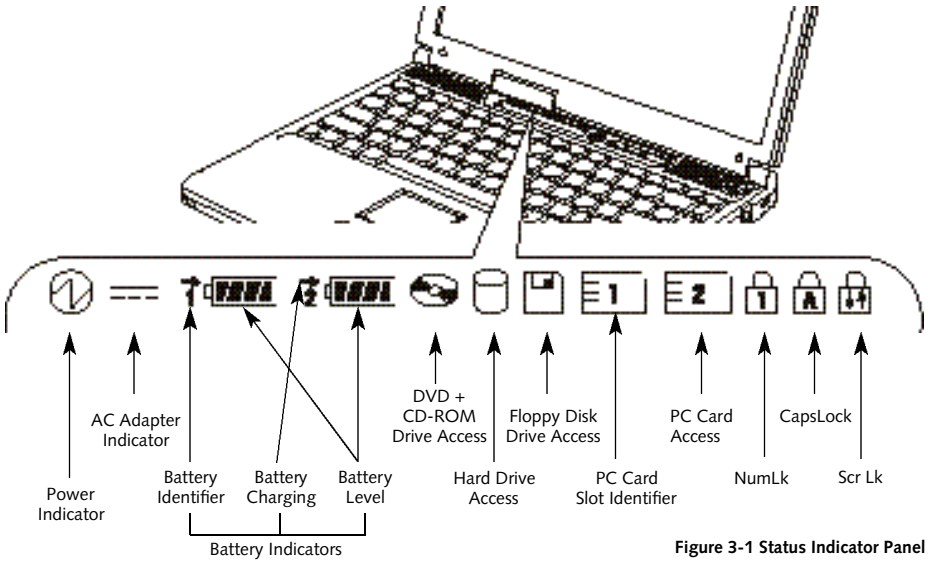

Figure 3-1 Status Indicator Panel

POINT

When your notebook has been shut down from Windows, it is not the same as turned off from the power switch. It is in a pseudo-off state, with all applications closed, but can be turned on by pressing the Suspend/Resume button. It is drawing some current in the pseudo-off state.

CAUTION

Your notebook's power switch must be turned off to prevent all current draw.

AC Adapter Indicator

The AC Adapter indicator tells you whether the system is operating on an AC or auto/airline adapter, or batteries alone. The indicator is On when either of the adapters is active and Off when power comes from the batteries alone. If a battery is charging, the Power Adapter indicator is active regardless of the setting of the power switch. The AC Adapter indicator is also active if you have shut down from Windows but have not turned the power switch to Off. If there is no battery charging, and the power switch is Off,then the AC Adapter indicator and the Battery indicators will all be Off.

Battery Indicators

The two sets of battery indicators show whether or not the primary Lithium ion battery and/or the optional second Lithium ion battery are installed, and indicate the condition of each. *(Figure 3-2.)* **Battery 1 is the Lithium ion battery which is installed in your notebook and Battery 2 is the optional Lithium ion battery which can be installed in the Detachable Bay or Mobile LAN Dock. The battery indicators are displayed only for a battery which is installed.**

A small arrow icon (Battery Charging **indicator) appears to the left of each of the** Battery Level **indicators and above the number (**Battery Identifier**) if that battery is charging. The Battery Charging indicator flashes if the battery is too hot or too cold to charge.** *(Figure 3-2.)* **The Battery Charging indicators operate whether the power switch is Off or On.**

The symbols inside the battery outline of the Battery Level indicator show the operating level available in that battery. *(Figure 3-2.)* **If there is no battery charging and the power switch is Off then the AC Adapter indicator and the Battery indicators will all be off.**

CAUTION

A shorted battery is damaged and must be replaced. (*See Figure 2-4.*)

CAUTION

Turning off the power with the power switch or using the Suspend/Resume button when any of the Access indicators are On may cause loss of data and/or system errors.


76%–100%


51%–75%


26%–50%


13%–25%


Low Warning ≤12%


Dead Battery


Shorted Battery

Figure 3-2 Battery Level Indicator

CAUTION

Batteries subjected to shocks, vibration or extreme temperatures can be permanently damaged.

CD-ROM/DVD Drive Access Indicator

The CD-ROM/DVD Access indicator tells you the CD-ROM or DVD drive is being accessed. The CD-ROM/DVD Access indicator will flash when the software tries to access a CD, DVD or CD-ROM even if no CD-ROM or DVD drive is installed.

POINT

The Windows CD automatic insertion function will periodically check for a CD installed in the drive, causing the CD-ROM Access indicator to flash. The CD automatic insertion function allows your system to automatically start a CD as soon as it is inserted in the drive and the tray is closed. It will begin playing an audio CD or will start an application if the CD has an auto run file on it.

POINT

If you do not wish to have the CD automatic insertion function on you can disable it.

To disable the CD automatic insertion function for Windows 95 or Windows 98 do as follows:

1. **Save all data and close all applications.**
2. **Click on the Start button.**
3. **Point to** Settings.
4. **Click on the Control Panel. The control panel window will be displayed.**
5. **Double click on the System icon. The system properties dialogue box will be displayed.**
6. **Click on the Device Manager tab. The device list will be displayed.**
7. **Click on the + to the left of the CD-ROM icon. The CD-ROM drive manufacturer's name and model will be displayed.**

8. Click on the CD-ROM drive manufacturer's name and model.
9. Click on Properties. The CD-ROM drive manufacturer's name and model properties dialogue box will be displayed.
10. Click on the Settings tab.
11. Click on the automatic insertion notification box to toggle it off.
12. Click on OK.
13. Click on OK in the system properties dialogue box.
14. Restart your notebook according to the message displayed.

You can re-enable the function by repeating the process except in step 11 change the setting to on.

Hard Drive Access Indicator

The Hard Drive Access indicator tells you when the internal hard drive is being accessed.

Floppy Disk Drive Access Indicator

The Floppy Disk Drive Access indicator tells you when a floppy disk drive or optional SuperDisk drive is being accessed. The Floppy Disk Drive Access indicator will flash when your software tries to access a floppy disk or SuperDisk even if no floppy disk drive or SuperDisk drive is installed.

PC Card Access Indicators

The PC Card Access indicators tell you when an installed PC Card is being accessed. Card 1 is the connector inside the slot on the right side of your notebook. The PC Card Access indicator will flash if your software tries to access a PC Card even if none are installed.

NumLk Indicator

The NumLk indicator tells you the internal keyboard is set in ten-key numeric keypad mode. *(See page 33 for more information on the numeric keypad.)* You can activate the NumLk mode by pressing the NumLk/Scr Lk key while holding down the Shift key. Deactivate the setting the same way that you activated it.

CapsLock Indicator

The CapsLock indicator tells you when the keyboard is set for all capital letters. Activate the all capital letters setting by pressing the CapsLock key on the keyboard. Deactivate the setting the same way that you activated it.

Scr Lk Indicator

The Scr Lk indicator tells you when scroll lock is active. You can activate or deactivate the scroll lock by pressing the NumLk/Scr Lk key. Deactivate the setting the same way that you activated it.

INTEGRATED TOUCHPAD POINTING DEVICE

The Touchpad pointing device is composed of a small rectangular touch sensitive pointer control and two buttons located in front of the keyboard. The Touchpad pointing device has the function of a mouse, and moves the cursor around on the screen – up, down ,left and right. A light pressure with the tip of your finger is all that is required to operate the Touchpad. Pencil erasers, etc. don't work. The faster you move your finger the faster the cursor will move. The second part of the Touchpad pointing device – the buttons – function as mouse buttons, and the functions they perform depend on the application you are running. *Figure 3-3* **shows the position of the Touchpad and buttons.**

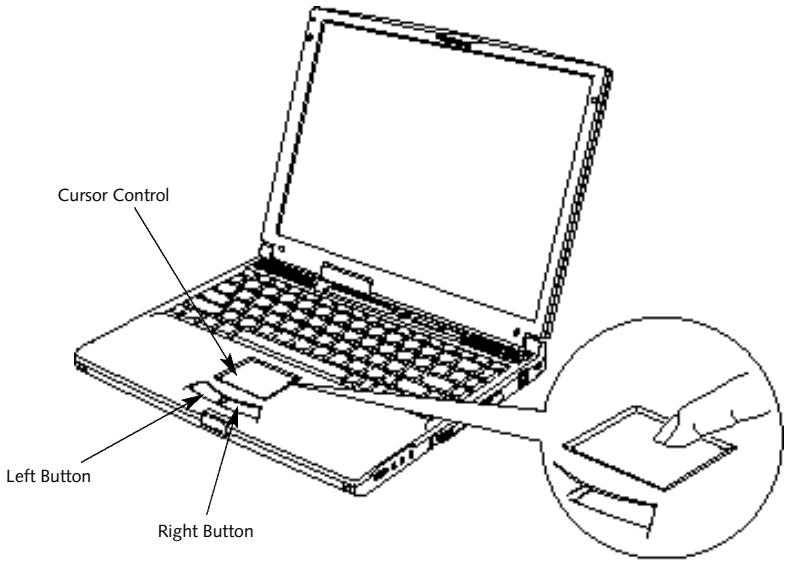

Figure 3-3 Touchpad Pointing Device

POINT

An external mouse can be connected to the PS/2 port on the back side of the notebook, and used at the same time as the Touchpad pointing device but if you boot the system with the PS/2 mouse your Touchpad will be disabled as specified in your BIOS settings. You can set the Touchpad so that it is always enabled. (See Section Four page 74 for details).

POINT

The left mouse button functions can also be performed with your finger on the Touchpad.

Clicking

Clicking means pushing and releasing a button. To left-click,move the screen cursor to the item you wish to select, press the left pointing device button once,and then immediately release it. To right-click,move the mouse cursor to the item you wish to select, press the right pointing device button once,and then immediately release it. *(Figure 3-4.)* **You can also left click by a light tap on the Touchpad ending with your finger off the pad, instead of using the button.**

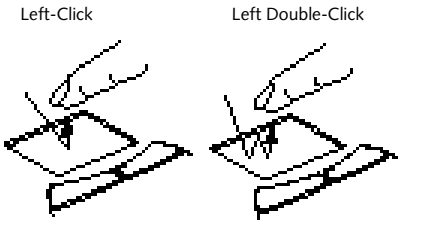

Figure 3-4 Clicking

Figure 3-5 Dragging

Double-Clicking

Double-clicking means following the preceding Clicking procedure, but pressing the pointing device button twice in rapid succession. Double-clicking works with either the left or the right button. You can also double left click by two light taps on the Touchpad ending with your finger off the pad,instead of using the button.

CAUTION

If the interval between clicks is too long, the double-click will not be executed.

POINT

The interval between clicks for double clicking, and other parameters of pointing and selecting, can be adjusted with the selections in the dialog box of the mouse icon in your Windows Control panel.

POINT

For your convenience, we have included the LogiTech MouseWare driver for your integrated Touchpad device. Through "My Computer" or Windows Explorer locate the directory D:\Drivers\9598NT\Touchpad. Follow the directions in the Read-me file in this directory to install the optional driver.

Dragging

Dragging means selecting an item with the pointing cursor, and while keeping the left pointing device button depressed,moving the cursor to the desired new location, then releasing the button. *(Figure 3-5.)* **Dragging can also be done on the Touchpad – two light taps ending with your fingernail on the pad and then moving, or holding the left button down and moving your fingernail on the pad.**

Touchpad Control Adjustment

The Windows Control Panel provides customization of your pointing device from the mouse icon. There are four (4) aspects of pointing device operation which you can adjust.

- **Buttons – This lets you set up the buttons for right or left handed operation and set the time interval for double clicking.**
- **Pointers – This lets you set up the size and shape of the cursor for different functions.**
- **Motion – This lets you set up the relation of the speed of motion of your finger to the motion of the cursor and to enable a trailing tail for the cursor arrow.**
- **General – This allows you to choose the type of mouse being used. It is already set for your integrated Touchpad. You may need to change it for an external mouse.**

You may want to try practicing with different adjustments until you find a combination that is comfortable for you.

USING THE KEYBOARD

Your notebook has an integral 86-key keyboard. *(Figure 3-6.)* **The keys perform all the standard functions of a 101-key keyboard and also include Windows keys and other special function keys. This section describes only those items specific to your notebook. They are the numeric keypad, the cursor keys,the function keys,the function extension key (Fn) and the Windows keys.**

Numeric Keypad

Certain keys on the keyboard perform dual functions as both standard character keys and numeric keypad keys. Figure 2-9 highlights these keys. To switch into numeric keypad mode, press the NumLk/Scr Lk while holding down the Shift key. You can now enter numerals 0 through 9, perform addition (+), subtraction (–), multiplication (*), or division (/), and enter decimal points (.) using the keys designated as ten-key function keys. The keys in the numeric keypad are marked on the front edge of the key to indicate their secondary functions.

To return these keys to their normal character function, press the NumLk/Scr Lk while holding down the Shift key again.

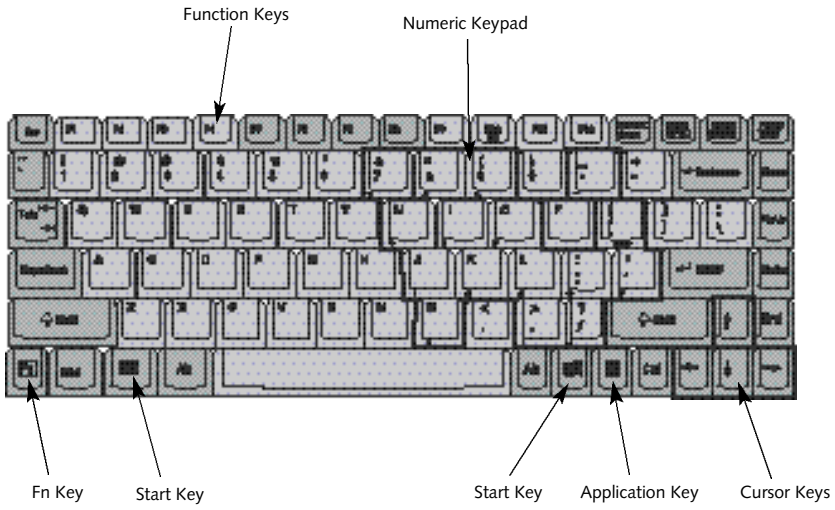

Figure 3-6 Keyboard

POINT

When an external numeric keypad is connected to the notebook the NumLk mode enables the external keypad and disables the built-in keyboard numeric keypad.

Cursor Keys

The cursor keys are the four arrow keys on the keyboard which allow you to move the cursor up ↑, down ↓, left ← and right → as your application allows.

POINT

The integrated pointing device and/or external mouse are also used for moving the cursor around the screen.

Function Keys

Your notebook has 12 function keys, F1 through F12. The functions assigned to these keys differ for each application. You should refer to your software documentation to find out how these keys are used. *(See Figure 3-6.)*

Fn Key

The Fn key provides extended functions for the notebook and is always used in conjunction with another key. *(See Figure 3-6.)*

Pressing F5 while holding down the Fn key allows you to toggle between video compensation and no compensation. (Video compensation controls spacing on the display. When it is enabled,displays with less than 1024 x 768 or 800 x 600 pixel resolution will still cover the entire screen.)

Pressing F10 while holding down the Fn key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, or both built-in display panel and external monitor.

Windows Keys

Your notebook has three Windows keys,two Start keys and an Application key. The Start key displays the Start menu. This is the same as the button on the toolbar which is typically at the bottom of your Windows desktop. The Application key has the same function in Windows as the right mouse button, it displays the Shortcut menu for whatever item is selected. See your Windows documentation for additional information. *(See Figure 3-6.)*

VOLUME CONTROL

All system and application functions have multiple volume controls which interact with each other. There is the hardware volume control on the right side panel of your notebook, a volume control in the ESS AudioRack application, your operating system Sound Control panel and any other application with sound.

POINT

Windows NT 4.0 does not support the ESS AudioRack application.

Each setting source puts an upper limit on the volume which can be set by the other sources. For example if the hardware volume control is turned all the way down, your software volume control settings have no effect. By the same token, if the ESS AudioRack has the sound turned off, adjusting the hardware or other application software volume settings will not produce sound.One easy operating method is to use the hardware and ESS AudioRack volume controls to set an upper limit on sound level and then make fine adjustments with other application software.

CAUTION

The ESS AudioRack volume setting sets the maximum volume level of the hardware volume control knob.

CAUTION

If you use a speakerphone function, be sure that the microphone setting in the ESS AudioRack (recorder portion) is disabled.

BATTERIES

The Lithium ion battery is rechargeable with an operating time of up to three (3) hours depending on active power management features and user activity levels. Your notebook can be operated on the primary Lithium ion battery alone or in a dual battery configuration with an optional second Lithium ion battery in the Detachable Bay or the Mobile LAN Dock. A built-in bridge battery allows a charged Lithium ion battery to be exchanged for a discharged one by "warm-swapping". To warm-swap, have a charged battery ready, put your notebook in Suspend mode, remove the low battery and quickly insert a charged battery.

The Lithium ion battery operating time may become shorter than the reference value if it is used under the following conditions:

- **When used at temperatures that exceed a low of 5°C or a high of 35°C. High temperatures not only reduce charging efficiency, but can also cause battery deterioration. (The Charging icon on the Status Indicator panel will flash when you try to charge a battery that is outside its operating temperature range.)**
- **The battery charging capacity is reduced as the battery ages. If your battery is running low quickly, you should replace it with a new one.**
- **When using a high current device such as a modem,a LAN card, a CD-ROM/DVD drive, or the hard drive frequently.**

Using the AC adapter will conserve your battery when using a high current device such as a modem, a LAN card,a CD-ROM/DVD drive, or the hard drive frequently.

CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery condition, and other customer preferences. CD-ROM/DVD drive or hard drive usage may also have a significant impact on battery life.

CAUTION

Do not leave a faulty battery in your notebook. It might damage your AC adapter, optional auto/airline adapter, another battery, or your notebook itself. It may also prevent operation of your notebook by draining all available current into the bad battery.

Bridge Battery

The bridge battery is a NiCd battery that is built-in your notebook and is constantly being recharged.A bridge battery allows a charged

CAUTION

Under federal, state or local law it may be illegal to dispose of batteries by putting them in the trash. Please take care of our environment and dispose of batteries properly. Check with your local government authority for details regarding recycling or disposing of old batteries. If you cannot find this information elsewhere, contact your support representative at 1-800-8FUJITSU (1-800-838-5487).

Lithium ion battery to be exchanged for a discharged one by "warm-swapping".

To warm-swap have a charged battery ready, put your notebook in Suspend mode, remove the low battery and quickly insert a charged battery. The bridge battery capacity is not large, about 3 minutes,and can vary with the condition of your notebook.

CAUTION

Data may be lost and/or system errors introduced if the warm swap is not performed quickly.

CAUTION

The bridge battery can not support an operating notebook. The notebook must be in Suspend mode.

Shorted Batteries

If your Status Indicator panel shows a shorted battery, check the installation for that battery by removing and re-installing it. If it still shows that it is shorted, replace it with a new battery.

CAUTION

A shorted battery is damaged and must be replaced so that it does not damage anything else.

Recharging the Batteries

If you want to check the condition of either the primary Lithium ion battery or an optional second Lithium ion battery, check the Battery Level indicators located on the Status Indicator panel. These indicators change as the battery levels change. Battery 1 is a Lithium ion battery which is installed in your notebook and Battery 2 is a Lithium ion battery which is installed in the Detachable Bay or Mobile LAN Dock. *(Figure 3-1 on page 26.)*

The Lithium ion batteries are recharged internally using the AC adapter or auto/airline adapter. To recharge a battery:

- **Make sure the battery to be charged is installed in your notebook,the Detachable Bay or the Mobile LAN Dock and connect the AC or auto/airline adapter.**
- **Make sure that the Battery Charging indicator to the left of the Battery Level indicator of the battery to be charged is visible on the Status Indicator panel.**
- **Make sure the percentage charge is shown inside the Battery Level icon.** *(Figure 3-1 on page 26.)*

When two Lithium ion batteries are installed, the charge/discharge rate of the primary and optional second Lithium ion batteries are the same,as they are connected in parallel and are both charging and/or discharging at the same time. Since the rates are the same, one may finish charging or discharging before the other if they were not at the same charge level when they were installed and/or the AC or auto/airline adapter was connected.

There is no memory effect on the Lithium ion batteries, which means that you do not need to discharge them completely before recharging. A single fully discharged Lithium ion battery will charge in approximately 4 hours when your notebook is Off or in Suspend mode. The charging time from fully discharged for two Lithium ion batteries together, is approximately six (6) hours when your notebook is Off or in Suspend mode. Of course partially charged batteries will not take as long to charge. The charge times will be significantly longer if your notebook is in use while the batteries are charging (from approximately nine (9) hours for one battery to approximately 15 hours for two batteries with normal operating levels).

CAUTION

Using heavy current devices such as LAN cards or frequent CD-ROM/DVD accesses may prevent charging completely.

POINT

You may use your Mobile LAN Dock as a battery charging station for the optional Second Lithium ion Battery when the notebook is not docked in the Mobile LAN Dock (The Mobile LAN Dock must be connected to an AC or Auto/Airline Adapter). Consult the Recharging the Batteries section above for more information. You cannot use the Detachable Bay as a battery charging station since it does not have a seperate power source.

Low Battery State

When the battery is running low, your notebook beeps about every 15 seconds and the Battery Level indicator(s) flash. If you do not respond to the low battery alarm,the battery will continue to discharge until it is too low to operate. When this happens there will be a multiple beep alarm,the Battery Level indicator will show dead battery, and your notebook will go into Suspend mode to try and protect your data as long as possible. Your power management settings do not affect what happens at the dead battery alarm level. Your notebook will go to Suspend mode. *(Figure 3-1 on page 26.)*

CAUTION

You may not be able to hear the audio alarms if the volume control is set too low or is turned off by either hardware or software but you will still be able to see the Battery Level indicator(s) flash.

When the low battery alarm occurs you need to save all your active data and put your notebook into Suspend mode until you can provide a new power source. You should provide this power as soon as possible. The new power source can be a charged battery or a power adapter, either AC or auto/airline.

CAUTION

When you are in Suspend mode there must always be at least one power source active. If you turn off the power with the power switch, or remove all power sources, battery, AC adapter or auto/airline adapter, while your notebook is in Suspend mode any data which has not been saved to the hard drive will be lost.

Once your notebook goes into Dead Battery Suspend mode you will be unable to resume operation until you provide a source of power either from an AC adapter, an optional auto/airline adapter, or a charged battery. Dead Battery Suspend mode shows on the Status indicator just like the normal Suspend mode. Once you have provided power, you will need to press the Suspend/Resume button to resume operation. In the Suspend mode, your data can be maintained for sometime. If a power source is not provided promptly, the Power indicator will stop flashing and go out,and you will have lost the data that was not stored.

Once you provide power you can continue to use your notebook while an adapter is charging the battery, but the battery trickle charges under these conditions. If you want to charge the battery more quickly, put your notebook into Suspend mode, or turn off your notebook while the adapter is charging the battery. *(See Power Off on pages 21-22 for shutdown procedures.)*

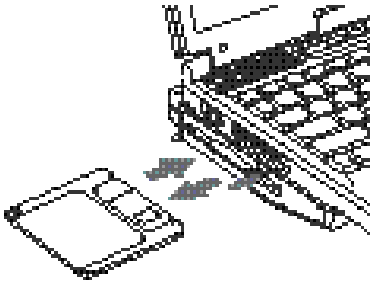

Figure 3-7 Loading/Ejecting a Floppy Disk

CAUTION

There is no guarantee that data will not be lost once your notebook enters the Dead Battery Suspend mode.

FLOPPY DISK DRIVE

The modular floppy disk drive is a 3.5" drive which can read and write on 1.44MB and 720KB memory capacity floppy disks.Floppy disk format is controlled from your operating system.(See your software documentation for more information.) The modular floppy disk drive can be used in the Detachable Bay, externally with the optional FDD cable, or you can use an optional external floppy disk drive. The system will treat any floppy disk drive in exactly the same way regardless of where it is installed. *(For floppy disk drive installation and removal instructions see Detachable Bay on pages 120-127 and External Installation of a Floppy Disk Drive on page 130.)* **When your system boots it will always look for a floppy disk drive in the Mobile Bay Unit first,and then look at the external floppy disk drive port.**

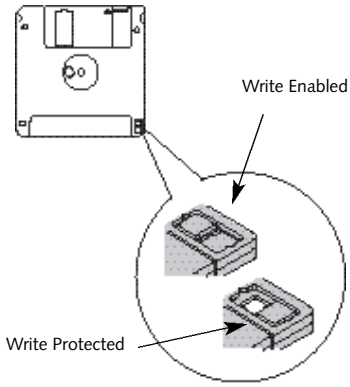

Figure 3-8 Floppy Disk Write Protect

CAUTION

To get your system to recognize a newly installed floppy disk drive you must restart your notebook.

Loading a Floppy Disk

To load,insert a floppy disk into the floppy disk drive,shutter side first and label up, until the Eject button,above the floppy disk drive opening, pops out. *(Figure 3-7.)*

POINT

When there is no floppy disk in the drive, the Eject button is flush with the front of your notebook.

Ejecting a Floppy Disk

To eject a disk, check that the Floppy Disk Drive Access indicator is Off, *(see page 39)* **and press the Eject button.** *(Figure 3-7.)*

CAUTION

If you eject the disk while the Floppy Disk Drive Access indicator is On, there is a risk of damaging the data on the disk or the disk drive.

Preparing a Floppy Disk for Use

Before you can use a new floppy disk, you need to prepare it so your notebook knows where to store information. This preparation is called formatting or initializing a disk. You need to format new 3.5" floppy disks,unless you purchase preformatted disks. You will use your notebook's operating system software to format a floppy disk.Please refer to the operating system manual for step-by-step instructions.

To prevent data stored on a floppy disk from being erased,slide the write protect tab on the floppy disk to open up the small hole. This makes the disk write protected. When you want to write data to that disk,slide the write protect tab the other way to close the small hole.

CAUTION

Formatting a previously used floppy disk is an effective method of clearing a disk as long as you realize that ALL the information on the disk will be erased.

Care of Floppy Disk Drives and Disks

- **Avoid storing the floppy disk drive and disks in extremely hot and cold locations, or in locations subject to severe temperature changes.**
- **Keep the floppy disk drive and disks out of direct sunlight and away from heat.**
- **Avoid storing the floppy disk drive in locations subject to shock and vibration.**
- **Avoid using the floppy disk drive and disks in damp and dusty locations.**
- **Never use the floppy disk drive with any liquid,metal, or other foreign matter inside the floppy disk drive or disk.**
- **Never store a floppy disk near a magnet or magnetic field.**
- **To clean, wipe the floppy disk drive clean with a dry soft cloth or with a soft cloth dampened with water or a solution of neutral detergent. Never use benzene,paint thinner, or other volatile material.**
- **Never disassemble or dismantle your floppy disk drive.**

Figure 3-9 SuperDisk 120 Drive

SUPERDISK™ 120 DRIVE

The optional modular SuperDisk 120 drive is a floppy disk drive that can read and write both 120MB SuperDisks and standard 1.44MB and 720KB floppy disks. It takes the place of a floppy drive and offers greater removable media storage capabilities.

The SuperDisk 120 drive works very much like a regular floppy disk drive in your LifeBook L Series.Please refer to the Floppy Disk Drive section for usage and care information.

Figure 3-10 CD-ROM/DVD Drive

CD-ROM DRIVE

The modular CD-ROM drive is a 20x maximum reader that can only be used in the Multifunction Bay of the Detachable Bay.

DVD DRIVE

The optional modular DVD Drive is a 1.5-speed maximum reader and takes the place of the CD-ROM drive in the Detachable Bay. It works very much like a CD-ROM drive in that it can read CD-ROMs as well as DVDs. It can also play Audio CDs.

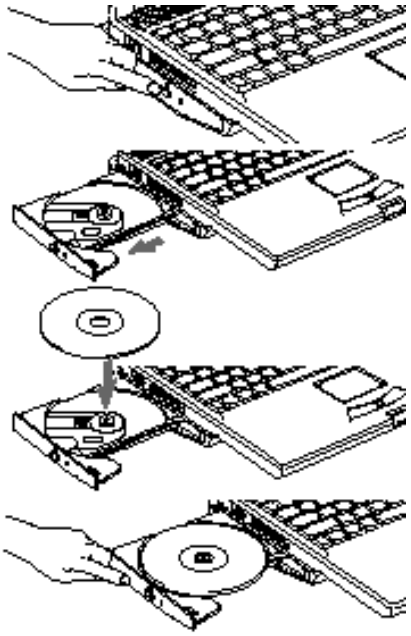

Figure 3-11 Loading the CD-ROM/DVD Tray

Loading a CD or DVD

- **Make sure there is power to your notebook.**
- **Push, gently but firmly, and release the eject button on the front of the CD-ROM/DVD drive to open the CD-ROM/DVD holder tray, the tray will come out a short distance.**
- **Gently pull the tray out until a CD-ROM /DVD can be easily placed in the tray.**
- **If there was a protective sheet in the tray when it was shipped,make sure it has been removed.**
- **Place the CD into the tray, label side up, with the hole in the center of the CD snapped onto the raised circle in the center of the tray.**
- **Close the tray.**
- **After the CD is loaded,it will take a short time for your notebook to recognize it.**

CAUTION

When operating your notebook in combination with the Detachable Bay, always make sure the Keyboard Tilt Feet are folded out to make your notebook more stable. This is especially important when using the CD-ROM or DVD drive in the Detachable Bay.

POINT

If you have disabled your CD automatic insertion function you will have to start the CD from your desktop, as your notebook will not automatically recognize that the CD has been loaded.

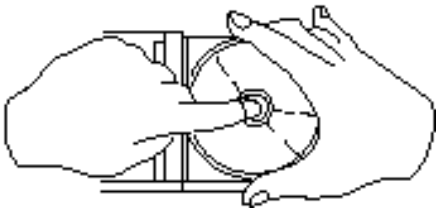

Figure 3-12 CD-ROM/DVD Handling

Care of CD and DVDs

CD/DVDs are precision devices and will function reliably if given reasonable care.

- **Always store your CD-ROM/DVD in its case when it is not in use.**
- **When removing the CD-ROM/DVD from its case, press down on the holder's center while lifting out the CD-ROM/DVD by its edges.**
- **Always handle a CD-ROM/DVD by the edges and avoid touching the surface.**
- **Avoid storing any CD-ROM/DVD in extreme temperatures.**

- **Do not bend CD-ROM/DVDs or set heavy objects on them.**
- **Never write on the label surface with a ball point pen, pencil or similar device.**
- **If a CD-ROM/DVD is subjected to a sudden change in temperature, cold to warm condensation may form on the surface. Wipe the moisture off with a clean,soft,lint free cloth and let it dry at room temperature. DO NOT use a hair dryer or heater to dry a CD-ROM/DVD.**
- **If a CD-ROM/DVD is dirty, use only a CD-ROM/DVD cleaner or wipe it with a clean, soft,lint free cloth starting from the inner edge and wiping to the outer edge.**

Formatting the Hard Drive

The hard drive inside your notebook is formatted (initialized) at the factory. You do not need to format it under normal circumstances.

CAUTION

If you reformat the internal hard drive ALL data including the operating system, applications software and user data will be erased. Unless data is copied to floppy disks or other data storage media it will be permanently lost. All software will be need to be re-installed and data files restored from your back-up disks. See the operating system manual for more information on backing-up your data files. The factory installed software, including the operating system, can be restored from the Recovery CD-ROM which came in the accessories box when you purchased your notebook. *(See Restoring Your Pre-installed Software from CD-ROM on page 162 for more information.)* Any application software which you have purchased and installed will have to be re-installed from the original source. When doing a recovery remember that you must allocate space for the Save-to-Disk function if you have it enabled. *(See Setting Up Your Save-to-Disk File Allocation on pages 117-118 for more information.)*

INTERNAL MODEM

Your LifeBook L Series is configured with a 56K fax/data/voice modem with v.90 support. The voice functions of the modem include speakerphone and answering machine capabilities that require the use of third party software not included with your notebook.

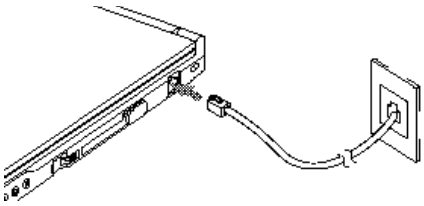

Figure 3-13 Internal Modem

CAUTION

The internal modems on all Fujitsu notebooks from Fujitsu PC Corporation are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries.

POINT

Modem voice functionality is not supported under Windows NT 4.0.

INFRARED PORT

Infrared IrDA-compatible communication is a function that allows for wireless data transfer between your notebook and other IrDA-compatible devices. Examples of IrDA-compatible devices are another computer or a printer. When carrying out this kind of communication, both devices must be set so their infrared ports are directly facing each other without obstructions.A distance of 6" to 36" between the device ports is ideal. Dirt or scratches on the lens of your notebook or the other device will degrade performance.
If you are using Windows 98, you can use the Infrared Recipient program for infrared file transfers.LapLink software can also be used for infrared file transfers in Windows 95 and Windows 98. See your online help for more information.

POINT

Windows NT 4.0 does not support the infrared port on your LifeBook L Series.

CAUTION

Do not move either device during communication as it may interrupt data transmission.

CAUTION

Be careful not to scratch the infrared port lens. Scratches, dirt or other surface marks can effect operation.

The following conditions may interfere with infrared communications:

- **When the infrared communication ports are not directly facing each other, or some obstacle is between them.**
- **When the infrared communication ports are too far apart.**
- **When a television or radio remote control unit, or a wireless headphone is being used nearby.**
- **When a strong light such as direct sunlight, fluorescent light, or incandescent light shines on the port.**

POWER MANAGEMENT

Your LifeBook L Series has many features for conserving battery power. Some power savings features are automatic and have no user control, such as those for the internal modem, while others depend on the parameters you set to best suit your operating conditions. Other power saving features turn the display brightness down, limit the use of high power devices, activate an appropriate power savings profile,

and put your notebook in Suspend mode when not actually performing an operation. As with all mobile,battery-powered computers,there is a trade-off between performance and power savings.

Internal power management for your notebook may be controlled from settings made in the BIOS setup utility, or from settings made in your operating system.

Using the Suspend/Resume Button

When your notebook is active,the Suspend/Resume button, *(Figure 1-6 on page 5)*, can be used to manually put your notebook into Suspend mode. The Suspend/Resume button is located next to the Status Indicator panel above the keyboard of your notebook. *(Figure 3-14.)* Push the Suspend/Resume button, when your notebook is active but no Access indicators are on and release the button (immediately). You will hear two short beeps and then your system will enter suspend mode.

If your notebook is suspended,pushing the Suspend/Resume button will return your notebook to active operation at the point where it went into suspension. You can tell whether or not your system is in Suspend mode by looking at the Power indicator. *(See page 26.)* If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your notebook is in Suspend mode. If it is not visible,the power is Off or your notebook is in Save-to-Disk mode. *(See pages 46-48.)* When you receive your LifeBook L Series it will be set to the default, which is Suspend mode.

CAUTION

Loss of all power sources, including batteries, while in Suspend mode will cause loss of data and an inability to return to operation with the Suspend/Resume button.

Suspend Mode

The Suspend mode, or Standby mode in Windows 98,saves the contents of your notebook's system memory during periods of inactivity by maintaining power to critical parts

Figure 3-14 Suspend/Resume Button

while turning off the CPU, the display, the hard drive and all other internal components except those necessary to maintain system memory, recognize the Suspend/Resume button and restart. Your notebook can be put in Suspend mode by:

- **Pressing the Suspend/Resume button when your system is in the On state.**
- **Selecting Suspend from the Windows Shut down menu (Windows 95).**
- **Selecting Standby from the Windows Shut down menu (Windows 98).**

- **Selecting System Suspend from the PowerPanel toolbar menu (Windows 95 and Windows NT).**
- **Timing out from lack of activity.**
- **Battery level reaching the Dead Battery Warning condition.**

Your notebook's RAM typically stores the file(s) on which you are working, the open application(s) and any other data required to support the operation(s) in progress. When you resume operation from Suspend mode,it returns to the point in the operation where it left off. You must use the Suspend/Resume button to resume operation,and there must be an adequate power source available, or your notebook will not resume.

Using the Suspend/Resume Button to Perform Save-to-Disk

When your notebook is active,the Suspend/Resume button, *(Figure 3-15)*, can be used to manually put your notebook into Save-To-Disk mode. However, you must first enable Save-to-Disk mode one of the following ways:

- **For Windows 98 you must enable Save-to-Disk mode in the BIOS Setup utility Power menu.** *(See pages 100-107 for more information on the Power menu of the BIOS Setup utility.)*
- **For Windows 95 and Windows NT you can simply click the Save-to-Disk activation button on the PowerPanel toolbar menu.** *(See pages 52-55 for more information on PowerPanel.)*

Push the Suspend/Resume button, when your notebook is active but no Access indicators are on and release the button (immediately). You will hear two short beeps and then your system will flash the Save-to-Disk screen,and enter Save-to-Disk mode.

If your notebook is in Save-to-Disk mode, pushing the Suspend/Resume button will return your notebook to active operation at the point where it went into Save-to-Disk mode.

You can tell whether or not your system is in Save-to-Disk mode by looking at the Power indicator. *(See page 26.)* **If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your notebook is in Suspend mode. If it is not visible, the power is Off or your notebook is in Save-to-Disk mode.**

Save-to-Disk Mode

The Save-to-Disk function,saves the contents of your notebook's system memory to the hard drive and shuts down whenever you:

- **Press the Suspend/Resume button until acknowledged with Save-to-Disk mode enabled from the Power menu of the BIOS setup utility.**
- **Select Suspend from the Windows Shut down menu with Save-to-Disk mode enabled by the BIOS setup utility (Windows 95 and Windows NT only.)**
- **Select Standby from the Windows Shut down menu with Save-to-Disk enabled by the BIOS setup utility (Windows 98 only).**

- **Select Save-to-Disk activation from the PowerPanel toolbar or menu (Windows 95 and Windows NT only.)**
- **Time out from lack of activity with Save-To-Disk mode enabled from the Power Savings menu of the BIOS setup utility.**

Your notebook's system memory typically stores the file(s) on which you are working, the open application(s) and any other data required to support the operation(s) in progress. When the Save-to-Disk function is activated your notebook saves the contents of the system memory to a file on the internal hard drive, and then automatically shuts off power to your notebook. When you resume operation by pressing the Suspend/Resume button, you return to the point in the operation where you left off, before going into Save-to-Disk mode.

CAUTION

Be sure you know which settings are active for the Suspend/Resume button before you use it; misuse can result in data loss. *(See the Power Menu of the BIOS setup utility, pages 100-107, for more information.)*

CAUTION

The Suspend or Save-to-Disk mode should not be used with certain PC Cards. Check your PC Card documentation for more information.

POINT

Disabling the Suspend/Resume button prevents it from being used to put your notebook in Suspend or Save-to-Disk mode. The resume function of the button cannot be disabled. *(See the Power Menu of the BIOS setup utility, pages 100-107, for more information.)*

POINT

If your notebook is active when you enter the Suspend or Save-to-Disk mode, changes to open files are not lost. The files are left open and memory is kept active during Suspend mode or the memory is transferred to the internal hard drive during Save-to-Disk mode.

CAUTION

If you are running your notebook on battery power, be aware that the battery continues to discharge while your notebook is in suspend mode, though not as fast as when fully operational. With a fully charged internal Lithium ion battery the suspend mode will maintain your status for 24 hours or more.

POINT

When PC Cards or external devices are in use, Save-to-Disk mode cannot return to the exact state prior to suspension, because all of the peripheral devices will be re-initialized when the system restarts.

POINT

The main advantage of using the Save-to-Disk function is that power is not required to maintain your data. This is particularly important if you will be leaving your notebook in a suspended state for a prolonged period of time. The drawback of using Save-to-Disk mode is that it lengthens the power down and power up sequences and resets peripheral devices.

POINT

Save-to-Disk mode requires allocating a significant amount of hard drive capacity for saving all system memory, which reduces your usable disk space. When you purchase your notebook it will have space allocated for the memory installed. If you upgrade the original system by adding a memory upgrade module without changing the size of your Save-to-Disk allocation you will get an error message when you try to activate Save-to-Disk mode and it will not work. Use the PHDISK Utility to increase the size of the Save-to-Disk file, SAVE2DSK.BIN. *(Refer to Setting Up Your Save-to-Disk File Allocation on pages 117-118 for more information.)* If you need help contact your support representative for recommendations.

Idle Mode

Idle mode is one of the power management parameters. When Idle mode is enabled the CPU is put into low-speed operation when there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for 16 seconds. Any activity will cause the normal operation to restart automatically. This feature is independent of the Suspend/Resume modes. This parameter is enabled and disabled in the BIOS setup utility. *(See page 102.)*

Standby Mode

Standby mode is one of the power management parameters. When Standby mode is activated, your notebook puts the CPU in low-speed operation,shuts off the display and turns off the hard drive when there is no activity (keystroke, pointer action, sound generation, video display change,modem transmission or reception, etc.) on your notebook for the user selected time-out period. *(See page 102.)* **Any activity will cause your notebook to return to normal operation automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility.**

POINT

The Idle mode and Standby mode features described above are only available in Windows 95 and Windows NT. Windows 98 has its own integrated power management features that include the functionality of those listed above.

Video Timeout

The Video Timeout is one of the power management parameters which saves power by turning off the display if there is no keyboard or pointer activity for the user selected timeout period. Any keyboard or pointer activity will cause the display to restart automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility. *(See page 101.)*

Hard Disk Timeout

The Hard Disk Timeout is one of the power management parameters which saves power by turning off the hard drive if there is no hard drive access for the timeout period which has been set in the BIOS setup utility. *(See page 101)* **Any attempt to access the hard drive will cause the hard drive to restart automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility.**

Windows Power Management Control Panels

The Power Management icon in the Windows 98 Control Panel allows you to configure some of the power management settings that are normally controlled by the BIOS. For instance, you can set timeout values in the Power Management Control Panel for turning off the display and for turning off hard disks. You can specify these timeout values based on whether you are running on batteries or AC.

The Power icon in the Windows 95 Control Panel will allow you to set timeout values for the hard drive only.

ACPI and Windows 98

Short for Advanced Configuration & Power Interface,a power management specification developed by Intel, Microsoft,and Toshiba. ACPI, which is part of the Windows 98 operating system, enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripheral devices, such as CD-ROM players, when they are not in use.

Your Windows 98 LifeBook L Series notebook is configured in APM (Advanced Power Management) mode. Due to ongoing industry development of ACPI technology, it is not recommended that you re-configure your notebook for ACPI mode.

PRE-INSTALLED SOFTWARE

Your LifeBook L Series comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer software, virus protection software,and Power Management software.

All of the pre-installed software can be accessed from the Program folder of the Windows Start menu. If you aren't sure what software is pre-installed check the Program folder. If you need assistance with an individual application use their online help.

SoftPEG MPEG File Player

The MPEG file player displays a screen to find the file which you wish to play. You can setup the list to select from limited to particular types of files or display all files. Opening the desired file will play it.Online help screens are available for more information.(Located in the Multimedia Software folder.)

SoftPEG Video CD Player

This control resembles a VCR player front panel and is operated in the same way. When you point to a button, a small explanation of the use of the button will appear. When you left-click on the button it will activate.Online help screens are available for more information. (SoftPEG is pre-installed on Windows 95 and Windows 98 systems only.)

POINT

You can modify the setup of certain audio parameters in the BIOS setup utility, Advanced Menu – Multimedia Device Configuration Submenu.
(See page 83.)

ESS AudioRack

The control of the AudioRack player software (AudioRack32) resembles the front panels of a rack of stereo equipment and is operated in much the same way. There is also AudioRack recorder software (AudioRecorder).Online help screens are accessible from the AudioDrive panel of AudioRack32, click on the Help button for more information. In the AudioRecorder dialog box, click on Help in the top taskbar.

In AudioRack32 the AudioDrive panel lets you turn on and off the available functions. When you left-click on a button it will activate. When a function is active,its button on the AudioDrive shows a green dot and its control panel is in the equipment rack. When it is off

the dot on the button is black and the control panel is not in the rack. You activate a slider or knob on a control panel by dragging it. The functions available are DAT (Digital Audio Tape player),3D (3D-Stereo sound control),MIDI, Mixer and CD (Audio CD player).

ESS AudioRack is pre-installed on Windows 95 and Windows 98 systems only.

POINT

For maximum frequency response and bandwidth, leave the graphic equalizer levels at the mid-point (zero level). To customize the frequency response to your personal taste, adjust accordingly.

CAUTION

The ESS AudioRack volume settings set the maximum volume level of the hardware volume control knob for that function.

POINT

The Audio Recorder feature is not available in the version of AudioRack pre-installed in Windows 98. Optimal recording capability is available through the Windows Sound Recorder application. Consult your Windows documentation or online help for specific information about Sound Recorder.

CAUTION

If you use a speakerphone function, be sure that the microphone setting in the ESS AudioRack is disabled.

LapLink

LapLink, by Traveling Software, file transfer software provides direct file transfers to other computers.Data transfers can be performed via internal modem,a PC Card modem,the infrared port,a serial cable, or a parallel cable (cables are not included). See the LapLink online help screens for operating instructions.

LapLink is pre-installed on Windows 95 and Windows 98 systems only.

Card Executive

Card Executive by Phoenix Technologies,allows you to configure PCMCIA cards in Windows NT 4.0. Consult on-line documentation for information on how to use the program. Card Executive is pre-installed on Windows NT 4.0 systems only.

McAfee VirusScan

Running your McAfee VirusScan program after loading data or programs from a floppy disk, CD-ROM,modem data transfer, or infrared data transfer is a precaution that will protect the data on your hard drive from contamination or destruction. See your VirusScan online help screens or online manual for information on how and when to run this program. McAfee VirusScan is pre-installed on all three operating sytems (Windows 95, Windows 98 and Windows NT 4.0).

PMSet 98

PMSet 98 is a power management application which allows you to monitor battery status and configure your LCD display to conserve power. See your online help screens for information on how to use the program.

PMSet 98 is pre-installed on Windows 98 systems only.

POINT

Due to the fact that the LifeBook L-Series hardware does not support 'CPU Clock Control' this option is not selectable in the 'Power Control' tab of the PMSet 98 application.

PowerPanel

PowerPanel by Phoenix Technologies provides Windows desktop access to a comprehensive combination of power management settings without entering the BIOS setup utility.

PowerPanel is pre-installed on Windows 95 and Windows NT systems only.

The PowerPanel icon looks like an atom with its cloud of electrons. This icon will open the PowerPanel menu. You can view the menu in icon format along the edge of your desktop by moving the cursor against the edge where you have chosen to keep your PowerPanel toolbar and letting it sit there until the toolbar appears. (The default position for the toolbar is the left side of the screen, but you can move it to whichever edge you like by dragging.)

The power management toolbar has ten power profile choices and six activation choices. When you switch to AC power operation the PowerPanel toolbar will automatically change to indicate AC power operation and will show the AC Power profile as active.

The profiles are groups of system settings designed to fit power operation to specific user operating conditions. The activations are short-cut ways to turn on specific power management features of your notebook. Some of the profiles can be edited and saved from the PowerPanel application, some can be edited and saved from the BIOS setup utility and only viewed from PowerPanel,and some are factory set and can only be viewed from either PowerPanel or the BIOS setup utility.

The profile choices are:

(This group is factory set.)

- **Maximum Battery Life.**
- **Maximum Performance.**
- **Power Management Off.**

  (This one is set only from the BIOS setup utility.)
- **Custom Settings.**

(This group is set from PowerPanel.)

- **Presentation.**
- **Green PC.**
- **AC Profile.**
- **Word Processing.**
- **Communication.**
- **Games.**

The activation choices are:

- **System Suspend.**
- **System Save-to-Disk.**
- **System Standby.**
- **Hard Disk Standby.**
- **Modem Power Toggle.**
- **Video Standby.**

The factory set Maximum Power Savings profile is designed around trade offs of performance and battery life. For true maximum battery life keep the display and volume levels as low as possible and use the custom settings recommended in Section Three on *page 100.*

POINT

The AC Power profile is activated automatically when a power adapter is being used, unless it is overridden by another selection made after the adapter became active. It can be reactivated by selecting it or it can be activated by selection, even when operating only on battery power.

POWERPANEL ONLINE HELP

To access help with your power management settings,move your cursor to the PowerPanel toolbar and right click. *(See Clicking on page 31.)* **From the menu that appears select** `PowerPanel Help Topics.`

POWERPANEL CUSTOMIZATION

To modify your PowerPanel toolbar or create a custom toolbar, move your cursor to the PowerPanel toolbar and right click. From the menu that appears select Customize. Within the Customize dialog box you can choose to have the toolbar display at all times or to use your custom toolbar. You can also select from the same menu to Hide the toolbar. If you hide the toolbar you will have to double click on the edge where the toolbar was located to display it.

If you select `Exit` **from the PowerPanel menu you will turn off the PowerPanel completely. To turn it back on, go to the Program folder of the Start menu,select PowerPanel and click on it.**

MAXIMUM BATTERY LIFE PROFILE

The Maximum Battery Life profile is a factory installed combination of timeouts and other power savings parameters read directly from the BIOS,and chosen as the settings that will produce the longest possible battery life.

MAXIMUM PERFORMANCE PROFILE

The Maximum Performance profile is a factory installed combination of timeouts and other power savings parameters read directly from the BIOS and chosen as the settings that will produce superior performance with reasonable battery life.

POWER MANAGEMENT OFF

Turns off power management control from Windows and PowerPanel and turns it over directly to the BIOS.

CUSTOM SETTINGS PROFILE

The Custom Settings profile has those power saving parameters that you set in the BIOS setup utility using the Power Savings Menu Customize feature. *(See Power Savings on page 101.)*

POINT

The Maximum Power Savings, Maximum Performance, and Power Management Off profiles are read only. The Custom Settings Profile can only be changed from the BIOS setup Utility.

PRESENTATION PROFILE

The Presentation profile is the same combination of timeouts and other power savings parameters as the Maximum Battery Life profile except that the display is never turned off. (This profile was designed to enhance the use of your notebook for slide show style presentations.)

GREEN PC PROFILE

The Green PC profile has the Video timeout and the Hard Drive timeout enabled.

AC PROFILE

The AC power profile has all timeouts disabled and no other power management features enabled. This profile is activated automatically by plugging in a power adapter.

WORD PROCESSING PROFILE

The Word Processing profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life when using your notebook for doing word processing.

COMMUNICATION PROFILE

The Communication profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life when using your notebook with the modem active such as during Internet,fax or speakerphone activities.

GAMES PROFILE

The Games profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life when playing games on your notebook.

SYSTEM SUSPEND ACTIVATION

Clicking on the Suspend button or selecting System Suspend on the PowerPanel menu will put your notebook in Suspend mode. Pressing the Suspend/Resume button turns the power back on and lets you begin where you left off. *(See Figure 3-14 on page 45, and Suspend Mode on pages 45-46.)*

SYSTEM SAVE-TO-DISK ACTIVATION

Clicking on the Save-to-Disk button or selecting System Save to Disk on the PowerPanel menu will put your notebook in Save-to-Disk mode. Your notebook will be left in the Windows 95 pseudo-off state. If the power switch is not turned off your notebook can be restarted by pressing the Suspend/Resume button which will cause the system memory to reload from the hard drive and let you begin where you left off. *(See Figure 3-14 on page 39, and Save-to-Disk Mode on pages 46-48.)*

SYSTEM STANDBY ACTIVATION

Clicking on the System Standby button or selecting System Standby on the PowerPanel menu will put your notebook in Standby mode. You can return your notebook to normal operation by performing any activity such as pressing a key or touching the pointing device.

HARD DISK STANDBY ACTIVATION

Clicking on the Hard Disk Standby button or selecting Hard Disk Standby on the PowerPanel menu will turn off your internal hard drive. You can return your notebook to normal operation by performing any hard drive operation.

MODEM POWER TOGGLE

Clicking on the `Modem Power Toggle` **button or selecting Modem Power Toggle on the PowerPanel menu will turn the power to your modem on or off. To turn it to the other condition select Modem Power Toggle again.**

VIDEO STANDBY ACTIVATION

Clicking on the Video Standby button or selecting Video Standby on the PowerPanel menu turns off the power to the display. You can return your notebook to normal operation by performing any activity such as pressing a key or touching the Touchpad pointing device.

DATA SECURITY

Your LifeBook L Series has a built-in hardware control password security feature that allows you to protect the data stored in the notebook from unauthorized access. Your operating system and some applications have software control password security features that allow you to protect all or portions of the data stored in the notebook from unauthorized access.

Hardware Data Security Features

When you are using your notebook built-in hardware control password to gain access to the notebook the actual password will not appear on the screen. This is a safety precaution. The hardware control security parameters are set from the BIOS setup utility. *(See Security Menu on pages 94-99 for more information on setting and clearing passwords and enabling and disabling built-in security features.)*

Software Data Security Features

The operating system and some applications have security features that are independent of the built-in hardware protection features that are controlled from the BIOS. See your software documentation for more information about these features.

CAUTION

Make sure you memorize your passwords, both hardware and software. If you forget, you may not be able to use the notebook, and you will have to contact your service provider and arrange to have them reset the hardware system password. See your software documentation for what to do if you forget your software security password(s).

CAUTION

Software security feature passwords may not be the same as the hardware security passwords. Be sure you know which features are controlled from software and which from hardware or you may lock yourself out of your own data or lock up your hardware and not be able to operate your notebook.

Configuring Your LifeBook L Series

SECTION FOUR

CONFIGURING YOUR LIFEBOOK L SERIES FROM FUJITSU

This section explains the BIOS setup utility. The BIOS setup utility is required to set the date, time, power management modes, data security passwords and other operating parameters of your notebook.

BOOT SEQUENCE

Each time you power up or restart your LifeBook L Series,it goes through a quiet boot sequence that displays a Fujitsu logo until your operating system is loaded. During quiet boot, your notebook is performing a standard boot sequence including a Power On Self Test (POST). To access the ability to change the drive that will be used for finding the operating system, press the Esc key anytime while the Fujitsu logo is displayed. To enter the BIOS setup utility press the F2 key anytime while the Fujitsu logo is displayed. When the boot sequence is completed without a failure and without a request for the setup utility, the system displays the Windows opening screen. The boot sequence is executed when:

- **You turn on power to the system using the power switch on the left side panel of your notebook.** *(Figure 2-5 on page 14.)*
- **You restart your computer from the Windows 95 Shutdown Menu of the Start Menu.**
- **The software initiates a system restart. Example: When you install a new application.**
- **You reset the system by pressing the three keys Ctrl+Alt+Del at the same time twice in a row. This method is not recommended since it can result in loss of data.**

POINT

The BIOS setup utility is entered by pressing the **F2** key during the boot while the Fujitsu logo is on the screen.

POINT

When error messages occur see Section Six *(pages 158-160)* for help in understanding the meaning and required actions to be taken.

IDENTIFYING THE DRIVES

Your notebook uses drive letters (Example A:, B:,C:,D:,E:) to identify internal and external devices such as hard drives, floppy disk drives, CD-ROM drives and PC Cards. The most commonly assigned drive designators are listed below. If you add other devices,the drive designators may be different. See your operating system manual for setting drive designators.

Drive Designators

A: Floppy disk drive.
Built in the Mobile LAN Dock, accessible when the Floppy disk drive is configured in the Detachable Bay, or used with an external floppy disk drive.

or

A: Super Disk Drive.
Accessible when the Super Disk drive is configured in the BIOS as a bootable floppy device and configured in the Detachable Bay at system boot up.

POINT

The BIOS setup utility is entered by pressing the **F2** key during the boot while the Fujitsu logo is on the screen.Please consult the documentation that comes with your Optional Super Disk Drive for instructions on how to configure the drive as a bootable floppy drive.

B: Super disk drive.
Accessible when the Super Disk drive is configured in the Detachable Bay at System boot up.

C: Hard drive.
Installed inside your notebook.

D: CD-ROM drive.
Built-in the Mobile LAN Dock or accessible when the CD-ROM drive is configured in the Detachable Bay.

D: Super Disk drive.
Accessible when the Super Disk drive is configured as a removable disk drive in the Detachable Bay during system operation.

CAUTION

A bootable CD-ROM may have either a floppy disk format or a hard drive format. When using a bootable CD-ROM, drive designations will automatically change according to which format is used. *(See page 66 for more information.)*

BIOS SETUP UTILITY

The BIOS setup utility is a program that sets the operating environment for your notebook. It is referred to in this publication as the setup utility. There is no need to set or change the BIOS's environment to operate your notebook. It is set at the factory for normal operating conditions.

The setup utility configures:

- **Standard system parameters, such as date and time.**
- **Device control features parameters, such as I/O addresses,and boot device.**
- **Power Management parameters that help to conserve your notebook's batteries.**
- **System Data Security feature parameters, such as passwords.**

You will only have to change the utility settings if you want to:

- **Change the date or time. (You can also do this without entering the setup utility, through your operating system.)** *(See your operating system manual.)*
- **Change the primary boot device.**
- **Change the power saving parameter settings.** *(For a more convenient process, see the PowerPanel section on pages 52-55.)*
- **Change a port address or other parameter.**
- **Change an audio parameter setting.**
- **Change the selection of whether to use the built-in display, an external monitor or both.** *(For a more convenient process, see the* **Fn** *Key description on page 34.)*
- **Change the system data security settings.**

Routinely Entering the Setup Utility

You can enter the setup utility whenever you turn on or reset the system. To do this:

1. **Allow the system to start booting.**
2. **As soon as the Fujitsu Logo appears on the screen, press the F2 key.**
3. **The Main Menu of the setup utility appears with the current settings displayed.**
4. **If you wish to go to one of the other setup menus, press the ← or the → key to find the menu you require.**

POINT

If your data security settings require it, you may be asked for a password before the Main Menu will appear.

Entering the Setup Utility After a Configuration Change or System Failure

If there has been a change in the system configuration that does not agree with the parameter settings stored in your BIOS memory, or there is a failure in the system,the system beeps and/or displays an error message after the Power On Self Test (POST). If the failure is not too severe,it will give you the opportunity to modify the settings of the setup utility, as described in the following steps:

1. **When you turn on or restart the computer there is a beep and/or the following message appears on the screen:**

   ```
   Error message - please run SETUP
   program Press <F1> key to con-
   tinue, <F2> to run SETUP
   ```

2. **If an error message is displayed on the screen, and you want to continue with the boot process and start the operating system anyway, press the F1 key.**

POINT

If your data security settings require it, you may be asked for a password before the operating system will be opened.

CAUTION

If your notebook beeps a series of beeps that sounds like a code and the display is blank, please refer to the Troubleshooting Section. *(See pages 148-155.)* The Troubleshooting Section includes a list of error messages and their meanings. *(See pages 158-160.)*

3. **If an error message is displayed on the screen, and you want to enter the setup utility, press the F2 key.**
4. **When the setup utility starts with a fault present,the system displays the following message:**

   ```
   Warning!
   Error message
   [Continue]
   ```

5. **Press any key to enter the setup utility. The system will then display the Main Menu with current parameter values.**

NAVIGATING THROUGH THE SETUP UTILITY

The BIOS setup utility consists of seven menus; MAIN,ADVANCED, SECURITY, POWER BOOT, INFO and EXIT. The remainder of Section Three explains each menu in turn including all submenus and setup items.

The following procedures allow you to navigate the setup utility menus:

1. **To select a menu,use the cursor keys: ←, →.**
2. **To select a field within a menu or a submenu, use the cursor keys: ↑, ↓.**
3. **To select the different values for each field, press the Spacebar or + to change to the next higher selection and F5 or - to go to the next lower selection.**
4. **To activate a submenu press the Enter key.**
5. **To return to a menu from a submenu, press the Esc key.**
6. **To go to the Exit Menu from any other menu, press the Esc key.**

POINT

Selecting a field causes a help message about that field to be displayed on the right-hand side of the screen.

7. **Pressing the F9 key resets all items in the current menu to the default values. You will be asked to verify this action before it is executed.**
8. **Pressing the F10 key saves the current BIOS configuration and exits the BIOS setup utility. You will be asked to verify this action before it is executed.**
9. **Pressing the F1 key will give you a general help screen.**

POINT

The BIOS Setup screens on the following pages are only a representation of the actual BIOS Setup screens. Your setup screens may vary.

MAIN MENU – SETTING STANDARD SYSTEM PARAMETERS

The Main Menu allows you to set or view the current System Parameters. Follow the preceding instructions for Navigating Through The Setup Utility to make any changes.

Table 4-1 shows the names of the menu fields for the Main menu, all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

POINT

System Time and System Date can also be set from your operating system without using the setup utility. Use the calendar and time icon on your Windows Control panel or type time or date from the MS-DOS prompt.

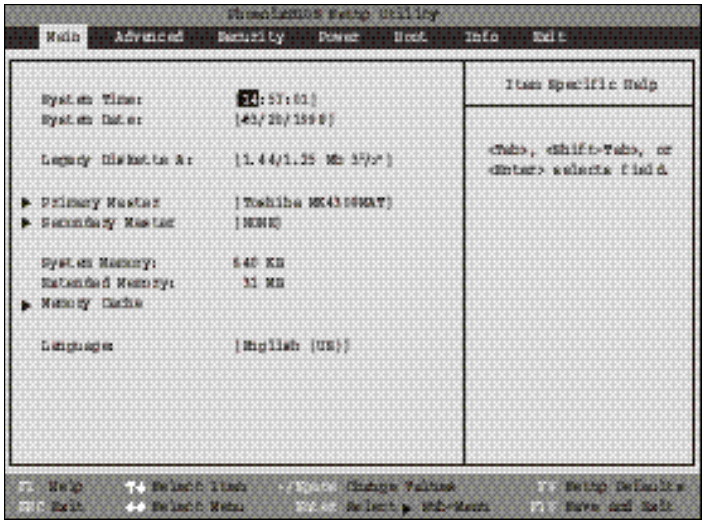

Figure 4-1 Main Menu

Table 4-1 Fields, Options and Defaults for the Main Menu

Menu Field	Options	Default	Description
System Time:	**—**	**—**	**Sets and displays the current time. Time is in a 24 hour format of hours:minutes:seconds with 2 digits for each.(HH:MM:SS). Example: 16:45:57. You may change each segment of the time separately. Move between the segments with the Tab key and/or Shift + Tab keys.**
System Date:	**—**	**—**	**Sets and displays the current date.Date is in a month/day/year numeric format with 2 digits each for month and day and 4 digits for year. (MM/DD/YYYY) for example: 03/20/1997. You may change each segment of the date separately. Move between the segments with the Tab key and/or Shift + Tab keys.**
Legacy Diskette A:	**1.44/1.25 MB, 3½"; Disabled.**	**1.44/1.25 MB, 3½"**	**Sets the format for floppy disk drive A if it is installed.**
Primary Master:	**Selects the Primary Master Adapter submenu.**	**[ToshibaMK4309MAT]**	**Displays the type of internal hard drive the BIOS believes is in use. The internal hard drive is connected to the Primary Master Adapter. When this field is selected it opens the Master Adapter submenu. You can then change hard drive parameters to suit your particular drive.**

Table 4-1 Fields, Options and Defaults for the Main Menu

Menu Field	Options	Default	Description
Secondary Master:	**Selects the Secondary Master Adapter Submenu.**	**UJDA-130**	**Displays the type of CD-ROM drive the BIOS believes is in use. The display will be different if your notebook is operating in an Mobile LAN Dock. The CD-ROM drive connects to the Secondary Master Adapter. When this field is selected it opens the Secondary Adapter submenu. You can then change CD-ROM drive parameters to suit your particular drive.**
System Memory:	**—**	**640 KB**	**Displays the size of system memory, which is detected automatically and cannot be changed by the setup utility.**
Extended Memory:	**—**	**31 MB**	**Displays the size of extended memory which is detected automatically and cannot be changed by the setup utility.**
Memory Cache:	**Selects the Memory Cache Submenu.**	**-**	**Allows you to set your system to use external memory cache.**
Language:	**English (US); Japanese (JP).**	**[English (US)]**	**The language selection controls the language in the BIOS screens and the power up screen. It does not change the operating system display so the desktop is not affected.**

Primary/Secondary Master Submenu of the Main Menu

The Primary Master and Secondary Master Adapter submenus are identical. The Primary Master Adapter is connected to the internal hard drive. The Secondary Master Adapter is connected to the Mobile LAN Dock port and from there to the CD-ROM drive. The type of drive is shown at the top of the Menu. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-2 shows the names of the menu fields for the Primary/Secondary Master Adapter submenu,all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

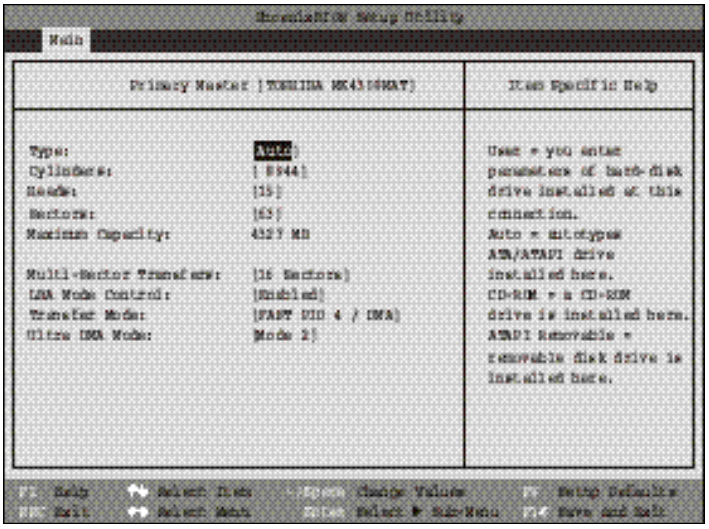

Figure 4-2 Master Adapter Submenu

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Type:	**Auto; None; CD-ROM; ATAPI Removable; User.**	**[Auto]**	**Allows you to configure the interface for almost any drive. When Auto is selected the BIOS detects the control parameters from the drive itself and displays them. The user can not change any of the other menu items when Auto is selected. The None selection is to use if there is no drive connected to that Adapter. No parameters are displayed. The CD-ROM selection lets you set the parameters that are displayed. The User selection lets you set the parameters that are displayed except the total capacity which is detected and displayed.**
Cylinders: (Available to change only when Type = User. Displayed when Type =Auto and a hard drive is detected. Not displayed for other selections.)	**A number between 0 and 65,535.**	**—**	**Sets the number of cylinders for the drive. This field can be changed by incrementing (pressing the Spacebar or Hyphen key) or by typing in the number.**

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Head:(Available to change only when Type = User. Displayed when Type = Auto and a hard drive is detected Not displayed for other selections.)	**A number between 1 and 16.**	**—**	**Sets the number of sectors on the drive. This field can be changed by incrementing (pressing the Spacebar or Hyphen key) or by typing in the number.**
Sectors: (Available to change only when Type =User. Displayed when Type = Auto and a hard drive is detected. Not displayed for other sections.)	**A number between 0 and 63.**	**—**	**Sets the number of cylinders for the drive. This field can be changed by incrementing (pressing the Spacebar or Hyphen key) or by typing in the number.**
Maximum Capacity: (Displayed for Type = User and for Type = Auto and a hard drive is detected. Not displayed for other selections.)	**Display only.**	**—**	

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Multi-Sector Transfers: (Available to change only when Type = User, CD-ROM or ATAPI Removable. Displayed when Type = Auto and a hard drive or CD-ROM is detected. Not displayed for other selections.)	**Disabled; 2 Sectors; 4 Sectors; 8 Sectors; 16 Sectors; MAX 32; MAX 64;MAX 128.**	**—**	**Sets the number of sectors allowed in a block transfer.**
LBA Mode Control: (Available to change only when Type = User, CD-ROM or ATAPI Removable. Displayed when Type=Auto and a hard drive or CD-ROM is detected. Not displayed for other selections.)	**Enabled; Disabled.**	**—**	**Enables or disables logical Block Addressing in place of Cylinder, Head, Sector addressing.**

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Transfer Mode: (Available to change only when Type= User, CD-ROM or ATAPI Removable. Displayed when Type= Auto and a hard drive or CD-ROM is detected. Not displayed for other selections.)	**Standard, Fast PIO 1; Fast PIO 2; Fast PIO 3; Fast PIO 4; Fast PIO 3/DMA; Fast PIO 4/DMA.**	**—**	**Selects the data movement method for the drive.**
Ultra DMA Mode: (Available to change only when Type = User, CD-ROM or ATAPI Removable. Displayed when Type = Auto and a hard drive or CD-ROM is detected. Not displayed for other selections.)	**Disabled; Mode 0; Mode 1; Mode 2.**	**—**	**Selects the DMA transfer mode for the drive.**

CAUTION

Be careful of the operating environment when booting from a CD-ROM or you may overwrite files by mistake.

CAUTION

A bootable CD-ROM may have either a floppy disk format or a hard drive format. When the bootable CD-ROM is used the drive allocations change automatically without changing the BIOS setup. If a floppy disk format CD-ROM is used the CD-ROM becomes Drive A. If a hard disk format CD-ROM is used the internal hard drive becomes Drive D and the CD-ROM becomes Drive C and all other drive designators shift as necessary. The boot sequence ignores the new drive designations, however, your application software will use the new designations.

Memory Cache – Submenu

The Memory Cache submenu provides the ability to enable or disable external cache memory for your processor. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-3 shows the names of the menu fields for the Memory Cache submenu, all the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

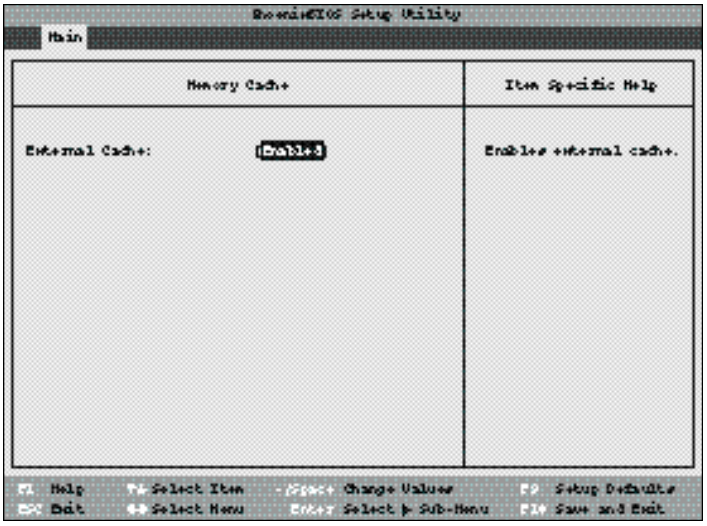

Figure 4-3 Memory Cache Submenue of the Main Menu

Table 4-3 Fields, Options and Defaults for the Memory Cache Submenu

Menu Field	Options	Default	Description
External Cache:	**Enabled; Disabled.**	**[Enabled]**	**Turns external memory cache on and off.**

Exiting from the Main Menu

When you have finished setting the parameters on this menu, you can either exit from the setup utility, or move to another menu. If you wish to exit from the setup utility, press the Esc key or use the cursor keys to go to the Exit menu. If you wish to move to another menu, use the cursor keys. See Navigating Through the Setup Utility on *page 61* **for more information.**

ADVANCED MENU – SETTING DEVICE FEATURE CONTROLS

The Advanced Menu allows you to:

- **Set the I/O addresses for the ports.**
- **Set the communication modes.**
- **Set audio function I/O address,interrupt level and DMA channel.**
- **Select between the display panel and an external CRT display.**
- **Enable or disable compensation for your display.**
- **Set keyboard and mouse features.**

Follow the instructions for Navigating Through the Setup Utility to make any changes.
(See page 61.)

Table 4-4 shows the names of the menu fields for the Advanced Menu,all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

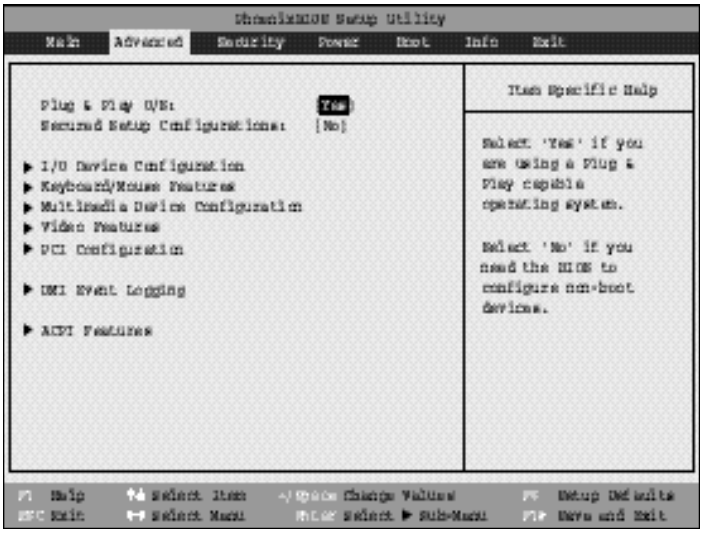

Figure 4-4 Advanced Menu

Table 4-4 Field Names, Options and Defaults for the Advanced Menu

Menu Field	Options	Default	Description
Plug & Play O/S:	**Yes; No.**	**[Yes]**	**Allows you to inform the BIOS whether your operating system is capable of plug and play operation.**
Secured Setup Configurations:	**Yes; No.**	**[No]**	**Allows you to prevent plug and play operations from changing system settings.**
I/O Device Configuration:	**Selects the I/O Device. Configuration submenu.**	**—**	**This menu allows you to set I/O addresses and interrupt levels for most input/output devices.**
Keyboard/Mouse Features:	**Selects the Keyboard/ Mouse Features submenu.**	**—**	**This menu allows changing some of the mouse and keyboard parameters.**
Multimedia Device Configuration:	**Selects the Multimedia Device Configuration submenu.**	**—**	**This menu allows setting of address and interrupts for multimedia devices.**
Video Features:	**Selects the Video Features submenu.**	**—**	**This menu allows setting up the display.**
PCI Configuration:	**Selects the PCI Configuration submenu.**	**—**	**This menu provides access to an additional submenu and allows enabling and disabling of the internal modem.**
DMI Event Logging:	**Selects the DMI Event Logging submenu.**	**—**	**This menu allows setting of the Desktop Management Interface (DMI) parameters.**
ACPI Features:	**Selects the ACPI Features submenu.**	**—**	**This menu allows setting of Advanced Configuration and Power Interface controls.**

POINT

If you purchased an L-Series notebook pre-loaded with the Windows NT 4.0 operating system, the default setting for Plug & Play O/S will be "No". This setting is optimal for NT functionality with your notebook.

CAUTION

I/O addresses, DMA channels and Interrupt levels can be entered in various ways, including via the BIOS setup utility, the control software for the I/O device, or the hardware. If any two ports or devices, serial or parallel, have the same I/O address assigned your notebook will not function normally. Please keep a record of original settings before making any changes in the event that a restoration is required. See your hardware and software documentation as well as the setup utility to determine settings, limitations, etc.

POINT

Although you have ACPI features available in the BIOS, your Windows 98 L-Series notebook (if you purchased this configuration) does not come pre-installed with an ACPI Power Management interface. Due to on-going development and changes in ACPI technology we recommend that you do not upgrade your Windows 98 system from APM to ACPI mode.

I/O Device Configuration Submenu of the Advanced Menu

The I/O Device Configuration submenu provides the ability to set the I/O addresses and interrupt levels for ports of your notebook. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-5 shows the names of the menu fields for the I/O Device Configuration submenu,all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

POINT

To prevent IRQ and address conflicts, avoid changing the default settings. If you must change the settings, you can call 1-800-8FUJITSU for technical assistance.

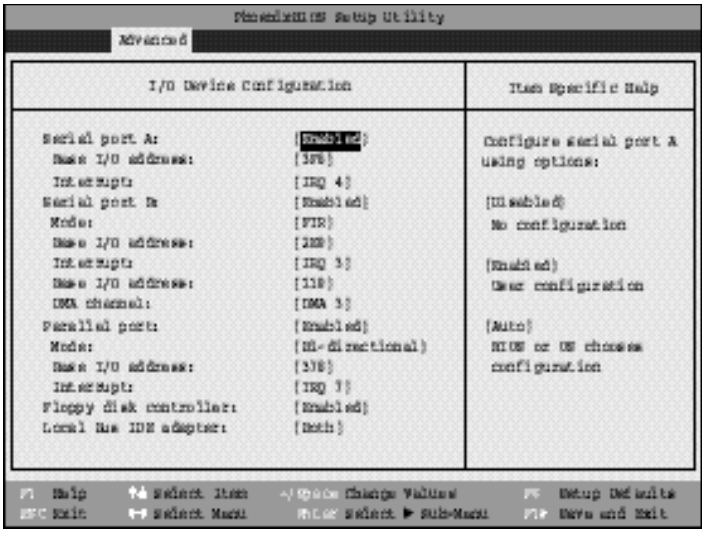

Figure 4-5 I/O Device Configuration

POINT

All I/O addresses in Table 4-5 are in hexadecimal.

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
Serial port A:	**Auto; Disabled;Enabled.**	**[Enabled]**	**Selects configuration method for serial port A. Serial port A is the external serial port. The selection Auto makes the BIOS or operating system choose the configuration. The Disabled selection means that serial port A is not configured for use. The Enabled selection provides for configuration setup by the user. When Enabled is selected the choices for setting Base I/O address and Interrupt level are displayed.**
Base I/O address: (Displayed only when serial port A is set to Enabled.)	**3F8;2F8; 3E8;2E8.**	**[3F8]**	**Sets the Base I/O address for serial port A.**
Interrupt:(Displayed only when serial port A is set to Enabled.)	**IRQ 3; IRQ 4; IRQ 10;IRQ 11.**	**[IRQ 4]**	**Sets the interrupt level for serial port A.**

CAUTION

The BIOS will warn you that there is a resource conflict by placing a yellow asterisk next to the device(s) in conflict.

POINT

If you purchased an L-Series notebook pre-loaded with the Windows NT 4.0 operating system, the default setting for Serial Port B will be "Disabled". This setting is optimal for NT functionality with your notebook.

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
Serial port B:	**Auto; Disabled; Enabled.**	**[Enabled]**	**Selects configuration method for serial port B. Serial port B is the serial port which is the infrared port. The selection Auto makes the BIOS or operating system choose the configuration except for mode. The Disabled selection means that serial port B is not configured for use. The Enabled selection provides for configuration setup by the user. When Enabled is selected the choices for setting Base I/O address and interrupt level are displayed.**
Mode:(Displayed if serial port B is not disabled.)	**FIR; IrDA.**	**[FIR]**	**Selects the speed and format of the infrared port.**
Base I/O address: (Displayed only when serial port B is set to Enabled.)	**3F8;2F8; 3E8; 2E8.**	**[2E8]**	**Selects the Base I/O address for serial port B.**
Interrupt: (Displayed only when serial port B is set to Enabled.)	**IRQ 3;IRQ 4; IRQ 10;IRQ 11.**	**[IRQ 3]**	**Sets the interrupt level for serial port B.**
Base I/O address: (Displayed only when serial port B is set to Enabled.)	**100;108; 110; 118.**	**[118]**	**Sets the Base I/O address for the FIR mode operation.**

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
DMA channel: (Displayed only when serial port B is set to Enabled.)	**DMA 1;DMA 3.**	**[DMA 3]**	**Sets the DMA channel for the FIR mode of operation.**
Parallel port:	**Auto; Disabled; Enabled.**	**[Enabled]**	**Selects configuration method for parallel port. The selection Auto makes the BIOS or operating system choose the configuration. The Disabled selection means that the parallel port is not configured for use. The Enabled selection provides for configurtion setup by the user. When Enabled is selected the choices for setting Base I/O address and Interrupt level are displayed.**
Mode: (Displayed if the parallel port is not disabled.)	**Bi-directional;ECP; Output only.**	**[Bi-directional]**	**Selects the mode for the parallel port. Bi-directional (Full Duplex) is two way transfer of information between your note book and a connected parallel device. Example: if your notebook is connected to a parallel printer, it can transfer data and control information to the printer and receive status and error inform tion from the printer. Output only (Half Duplex) is information transfer in one direction only, it can transfer data and control information to the printer but CANNOT receive status and error information from the printer. ECP allows communication with ECP class devices.**

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
Base I/O address: (Displayed only when the parallel port is set to Enabled.)	**378; 278; 3BC.**	**[378]**	**Selects the Base I/O address for the parallel port.**
Interrupt: (Displayed only when the parallel port is set to Enabled.)	**IRQ 5;IRQ 7.**	**[IRQ 7]**	**Sets the interrupt level for the parallel port.**
Floppy disk controller:	**Enabled; Disabled.**	**[Enabled]**	**Turns on and off the floppy disk drive controller.**
Local Bus IDE adapter:	**Disabled; Primary; Secondary; Both.**	**[Both]**	**Sets up the IDE adapter.**

Keyboard/Mouse Features Submenu of the Advanced Menu

The Keyboard/Mouse Features submenu is for setting the parameters of the integrated and external mouse and keyboard. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-6 shows the names of the menu fields for the Keyboard/Mouse submenu,all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

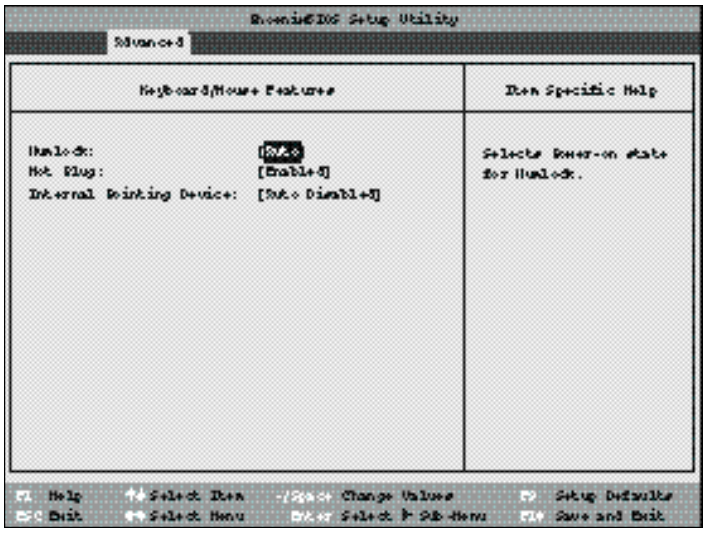

Figure 4-6 Keyboard/Mouse Features Submenu

Table 4-6 Fields, Options and Defaults of the Keyboard/Mouse Submenu

Menu Field	Options	Default	Description
Numlock:	**Off; On; Auto.**	**[Auto]**	**Sets the NumLock function state when the computer completes booting.**
Hot Plug:	**Enabled; Disabled.**	**[Enabled]**	**Enables and disables the ability to plug a mouse or keyboard into the PS/2 port and have it immediately recognized and active.**
Internal Pointing Device:	**Auto Disabled; Always Enabled.**	**[Auto Disabled]**	**Sets the device controlling the mouse cursor on the screen. Always Enabled makes the touchpad pointing device always enabled whether there is an external mouse or not. Auto Disabled makes the touchpad pointing device turn off when an external pointing device is connected to the PS/2 port.**

Multimedia Device Submenu of the Advanced Menu

The Multimedia Device submenu is for setting the features of the built-in audio, game and other multimedia functions. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-7 shows the names of the menu fields for the Multimedia Device submenu,all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

POINT

All I/O addresses in Table 4-7 are in hexadecimal.

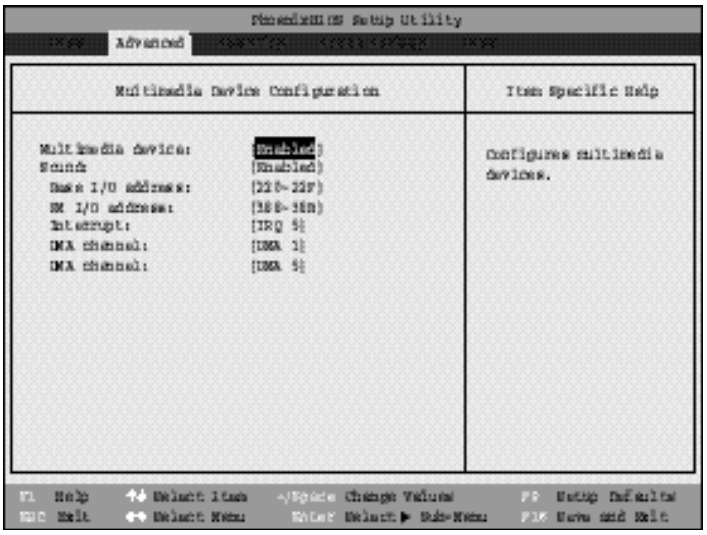

Figure 4-7 Multimedia Device Configuration Submenu

Table 4-7 Fields, Options and Defaults of the Multimedia Device Configuration Submenu

Menu Field	Options	Default	Description
Multimedia device:	**Enabled; Disabled.**	**[Enabled]**	**Turn sound and game equipment on and off.**
Sound: (Displayed only when multimedia is enabled.)	**Enabled; Auto; Disabled.**	**[Enabled]**	**The selection Auto makes the BIOS or operating system choose the configuration. The Disabled selection means that sound equipment is not configured for use. The Enabled selection provides for configuration setup by the user. When Enabled is selected the choices for setting Base I/O address and Interrupt level are displayed.**
Base I/O address: (Displayed only when multimedia and sound are both enabled.)	**220 – 22F; 240 – 24F; 260 – 26F; 280 – 28F.**	**[220 – 22F]**	**Sets the base addresses for sound equipment.**
FM I/O address: (Displayed only when multimedia and sound are both enabled.)	**338 – 38B;38C – 38F; 390 – 393; 394 – 397.**	**[338 – 38B]**	**Sets the base addresses for the FM synthesizer functions.**

Table 4-7 Fields, Options and Defaults of the Multimedia Device Configuration Submenu

Menu Field	Options	Default	Description
Interrupt:(Displayed only when multimedia and sound are both enabled.)	**IRQ 5; IRQ 7;IRQ 9; IRQ 10;IRQ 11.**	**[IRQ 5]**	**Sets the interrupt level for sound equipment.**
DMA channel:(Displayed only when multimedia an sound are both enabled.)	**DMA 0;DMA 1; DMA 3;DMA 5.**	**[DMA 1]**	**Sets the DMA channel for the FM synthesizer functions.**
DMA channel:(Displayed only when multimedia and sound are both enabled.)	**DMA 0; DMA 1; DMA 3;DMA 5.**	**[DMA 5]**	**Sets the DMA channel for the MIDI functions.**

Video Features Submenu of the Advanced Menu

The Video Features Submenu is for setting the display parameters. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-8 shows the names of the menu fields for the Video Features submenu,all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

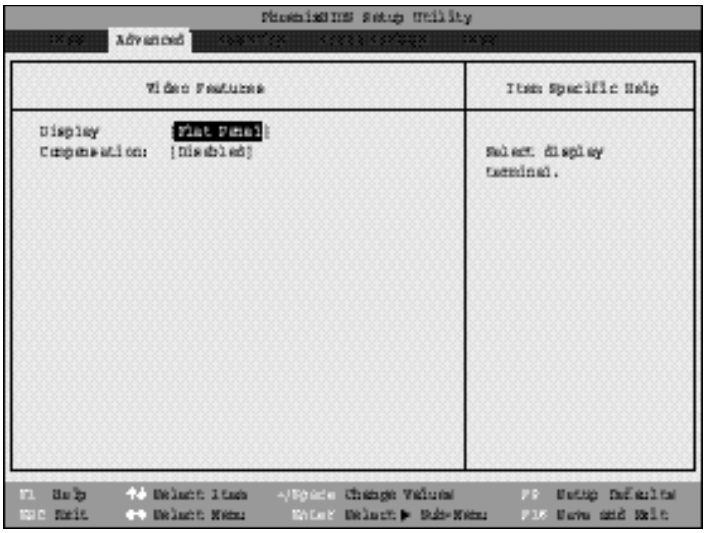

Figure 4-8 Video Features Submenu

Table 4-8 Fields, Options and Defaults for the Video Features Submenu

Menu Field	Options	Default	Description
Display:	**Flat-Panel; CRT; Simultaneous.**	**[Flat-Panel]**	**Selects where the video signal will be routed.**
Compensation:	**Enabled; Disabled.**	**[Disabled]**	**Enables or disables compensation which controls spacing on the display. When it is enabled displays with less than 1024 x 768 pixel resolution will still cover the entire screen.**

PCI Configuration Submenu of the Advanced Menu

The PCI Configuration Submenu is for enabling and disabling the internal modem and setting the interrupt options for legacy ISA devices. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-9 shows the names of the menu fields for the PCI Configuration submenu,all the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

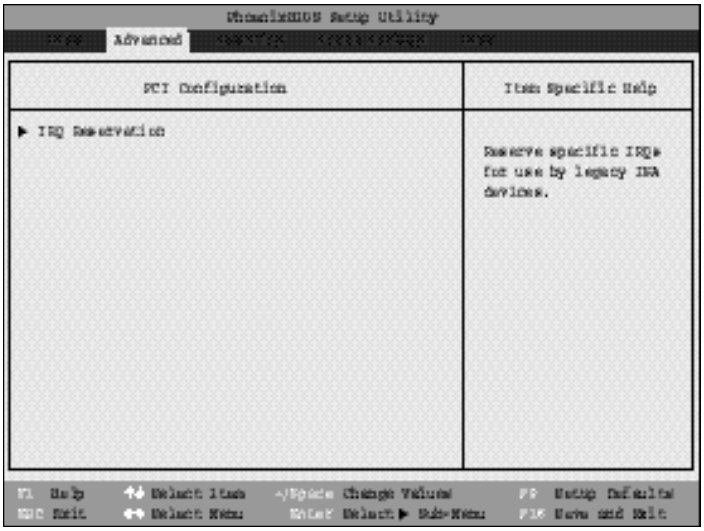

Figure 4-9 PCI Configuration Submenu

Table 4-9 Fields, options and Defaults for the PCI Configuration Submenu

Menu Field	Options	Default	Description
IRQ Reservation:	**Selects the IRQ Reservation Submenu.**	**—**	**This menu allows you to set aside interrupt levels for legacy ISA devices.**
Internal Modem:	**Disabled; Enabled.**	**[Enabled]**	**Allows the internal modem module to be enabled or disabled.**

IRQ Reservation Submenu of the PCI Configuration Submenu

The IRQ Reservation Submenu is for reserving interrupts for legacy ISA devices. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-10 shows the names of the menu fields for the IRQ Reservation submenu,all the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

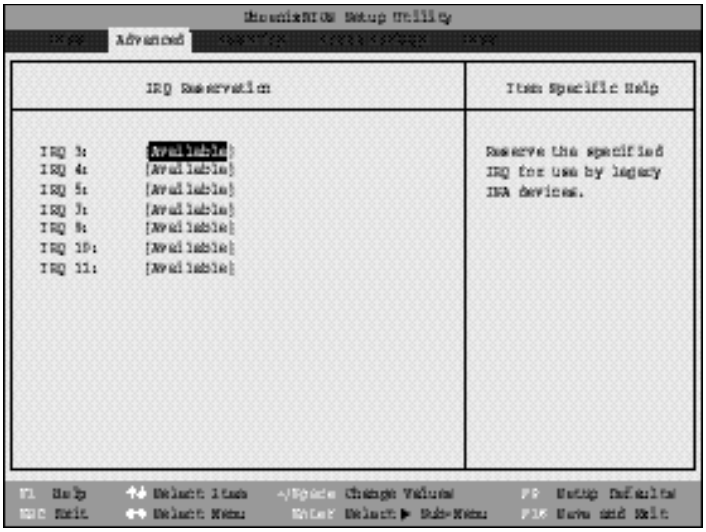

Figure 4-10 IRQ Reservation Submenu

Table 4-10 Fields, options and Defaults for the IRQ Reservation Submenu

Menu Field	Options	Default	Description
IRQ 3:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**
IRQ 4:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**
IRQ 5:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**
IRQ 7:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**
IRQ 9:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**
IRQ 10:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**
IRQ 11:	**Available; Reserved.**	**[Available]**	**Turns on or off the reservation for that IRQ for legacy ISA devices.**

CAUTION

Only IRQs 3, 9, 10 & 11 can be reserved without conflict.

DMI Event Logging Submenu of the Advanced Menu

The DMI Event Logging Submenu is for setting up the logs DMI event logging. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-11 shows the names of the menu fields for the DMI Event Logging submenu,all the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

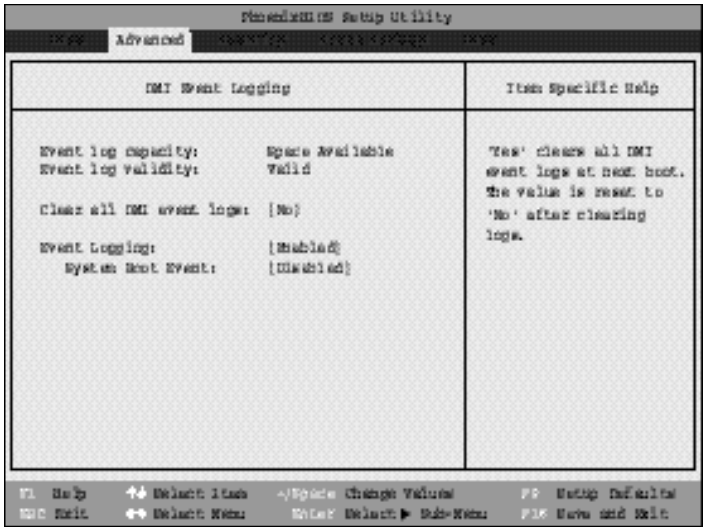

Figure 4-11 DMI Event Logging Submenu

Table 4-11 Fields, options and Defaults for the DMI Event Logging Submenu

Menu Field	Options	Default	Description
Event log capacity:	**Display only.**	**[Space Available]**	
Event log validity:	**Display only.**	**[Valid]**	
Clear all DMI event logs:	**Yes; No.**	**[No]**	**A Yes selection causes the event logs to clear at the next boot. Once the logs are cleared this automatically sets to No until reset to yes by selecting yes here.**
Event Logging:	**Enabled; Disabled.**		**Turns event logging on and off for all DMI events.**
System Boot Event:	**Enabled; Disabled.**	**[Disabled]**	**Turns event logging on and off for DMI system boot events.**

ACPI Features Submenu of the Advanced Menu

The ACPI Features Submenu is for selecting the ACPI Battery Management interface. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-12 shows the names of the menu fields for the ACPI Features submenu,all the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

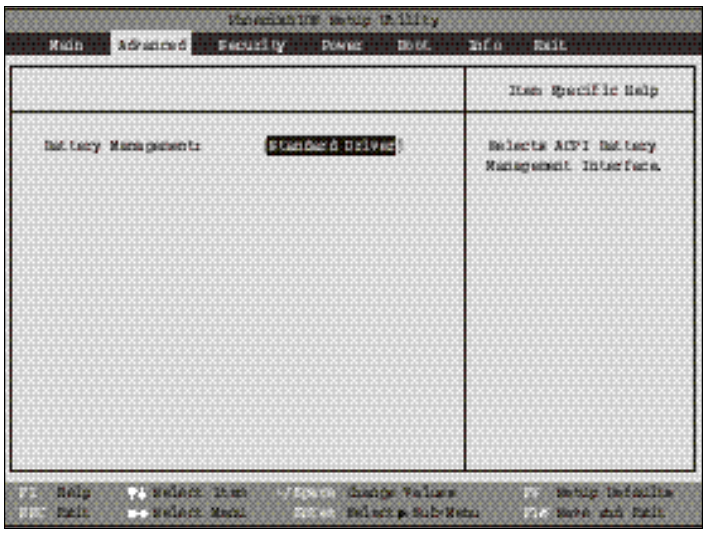

Figure 4-12 ACPI Features Submenu

Table 4-12 Fields, options and Defaults for the ACPI Features Submenu

Menu Field	Options	Default	Description
Battery Management:	**Standard Driver;. Smart Battery Driver.**	**Standard Driver**	**Selects ACPI Battery Management interface.**

SECURITY MENU – SETTING THE SECURITY FEATURES

The Security menu allows you to set up the data security features of your notebook to fit your operating needs and to view the current data security configuration. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-13 shows the names of the menu fields for the Security menu,all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use. The default condition is no passwords required and no write protection.

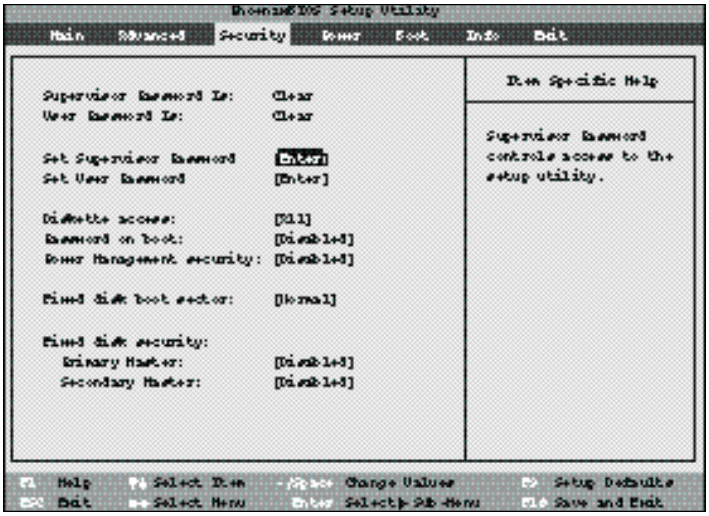

Figure 4-13 Security Menu

Table 4-13 Fields, Options and Defaults for the Security Menu

Menu Field	Options	Default	Description
Supervisor Password is:	**—**	**Clear**	**A display-only field. Set is displayed when the system supervisor password is set and Clear when it is not.**
User Password is:	**—**	**Clear**	**A display-only field. Set is displayed when the general user password is set,and Clear when it is not.**
Set Supervisor Password:	**[Enter]**	**—**	**Sets, changes or cancels the Supervisor Password. The Supervisor Password may be up to seven characters long and must include only letters or numbers. To cancel a password press the Enter key instead of entering characters in the Enter New Password field and in the Re-enter New Password field. When a Supervisor Password is set it must be used to access the BIOS setup utility.**
Set User Password:	**[Enter]**	**—**	**(This field can only be accessed if the Supervisor Password is set.) Sets, changes or cancels the User Password. The User Password may be up to seven characters long and must include only lower case letters or numbers. To cancel a password press the Enter key instead of entering characters in the Enter New Password and Re-enter New Password fields. When a User Password is set it must be used to access the BIOS setup utility**
.Diskette access:	**All; Supervisor Only.**	**[All]**	**Sets the floppy disk access to be secured for access only with Supervisor's password or by all users with a password. The default is all users with a password.**

Table 4-13 Fields, Options and Defaults for the Security Menu

Menu Field	Options	Default	Description
Password on boot:	**Enabled; Disabled.**	**[Disabled]**	**When set to Enabled,a password (User or Supervisor) is required after the Power On Self Test (POST) before the operating system will be read from a disk. When set to Disabled no password is required. If no Supervisor Password is set this feature is not available and no password is required.**
Power Management Security:	**Enabled; Disabled.**	**[Disabled]**	**When set to Enabled, a password (User or Supervisor) is required to resume from Suspend or Save-to-Disk mode. The password required is the same one required by the Password on Boot function.**
Fixed disk boot sector:	**Normal; Write Protect.**	**[Normal]**	**Sets write protection for the sector of the boot disk which contains the operating system. When set to Write Protect,the BIOS will prevent any application from writing into the sector of the internal hard drive containing the operating system. When set to Normal there is no BIOS protection of the operating system.**
Fixed disk security:	**—**	**—**	**—**
Primary Master:	**Enabled; Disabled.**	**[Disabled]**	**When set to Enabled , a password (User or Supervisor) is required to access data on the disk drive on the Primary Master interface.**
Secondary Master:	**Enabled; Disabled.**	**[Disabled]**	**When set to Enabled ,a password (User or Supervisor) is required to access data on the Secondary Master interface.**

CAUTION

If you set a password, write it down and keep it in a safe place. If you forget the password you will have to contact your support representative to regain access to your secured functions and data.

CAUTION

Entering a password incorrectly 3 times in a row will cause the keyboard and mouse to be locked out and the warning [System Disabled] to be displayed. If this happens restart the computer by turning off and on the power with the power switch and use the correct password on reboot.

POINT

If you make an error when re-entering the password a [Warning] will be displayed on the screen. To try again press the **Enter** key and then retype the password. Press the **Esc** key to abort the password setting process.

CAUTION

If the Power Management Security is Enabled and the Password on Boot is Disabled you will not be able to resume operation from the Suspend or Save-to-Disk modes.

POINT

Boot sector protection must be set to [Normal] to install or upgrade an operating system.

Exiting from the Security Menu

When you have finished setting the parameters on the Security Menu, you can either exit from setup utility or move to another menu. If you wish to exit from setup utility, press the Esc key to go to the Exit Menu. If you wish to move to another menu,use the cursor keys.

POWER MENU – SETTING POWER MANAGEMENT FEATURE CONTROLS

The Power menu allows you to set and change the power management parameters. Follow the instructions for Navigating Through the Setup Utility to make any changes.
(See page 61.)

Table 4-14 shows the names of the menu fields for the Power menu,all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

POINT

Most power management parameters can also be set from the Windows 95 or Windows NT 4.0 desktop without entering the setup utility, using PowerPanel by Phoenix Technologies. Changing the settings with PowerPanel does not change what is stored in the CMOS memory. *(See pages 52-55.)*

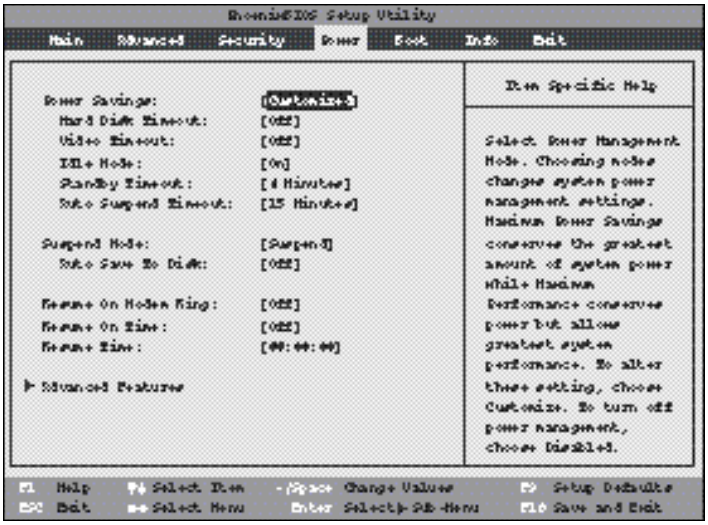

Figure 4-14 Power Menu

POINT

In Windows 98 Auto-Suspend Timeout, Hard Disk Timeout, and Video TImeout features are available exclusively through the operating system.

Table 4-14 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Power Savings:	**Customized; Maximum Performance; Maximum Power Savings, Disabled.**	**[Customized]**	**Sets the power savings parameters to a factory installed combination of parameters, a custom set of parameters set by you or no power saving features.**
Hard Disk Timeout:	**30 seconds to 20 minutes; Off.**	**[Off]**	**Sets the length of time that the hard drive can be inactive before your notebook automatically turns off the power to the hard drive controller and drive motor. If you choose a factory installed combination of parameters this field will display the setting. If you choose to customize the parameters you will be able to set this yourself. The options available vary from Off, which has no inactivity shutoff, to 20 minutes.**
Video Timeout:	**2 minutes to 20 minutes; Off.**	**[Off]**	**Sets the length of time without any user input device activity before the display is turned off. If you choose a factory combination of parameters,this field will display the setting. If you choose to customize the parameters, you will be able to set this yourself.Off has no inactivity shutoff.**

POINT

If you purchased an L-Series notebook pre-loaded with the Windows NT 4.0 operating system, the default setting for Power Savings will be "Disabled". This setting is optimal for NT functionality with your notebook.

Table 4-14 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Idle Mode:	**On; Off.**	**[On]**	**Turns on and off the slow down of the CPU during periods of inactivity. When this is turned on the CPU clock slows by the amount set in the Advanced submenu when there is no activity for 16 seconds or more. Normal speed resumes automatically as soon as there is any activity.**
Standby Timeout:	**1 minute to 16 minutes; Off.**	**[4 Minutes]**	**Sets the length of time without any user input device activity before the CPU is set to half speed and the display and the hard drive are turned off. If you choose a factory combination of parameters this field will display the setting. If you choose to customize the parameters you will be able to set this yourself.**
Auto Suspend Timeout:	**5 to 60 minutes; Off.**	**[15 Minutes]**	**Sets the length of time without any I/O activity before your not book goes into Suspend mode. If you choose a factory combination of parameters this field will display that setting. If you choose to customize the parameters you will be able to set this yourself.Off has no inactivity suspension.**
Suspend Mode:	**Suspend; Save-to-Disk.**	**[Suspend]**	**Sets the form of suspension state. If you choose Suspend, you will suspend operation with power to system memory, and everything else powered down or in a very low power state. If you choose Save-to-Disk your notebook will save all of system memory and the operating parameters to the hard drive before turning your notebook to the pseudo-off condition.**

Menu Field	Options	Default	Description		
Factory Installed Values for Power Saving Profiles					
Customized:	**Off.**	**Off.**	**Off.**	**4 Minutes.**	**15 Minute.**
Maximum Power Savings:	**30 seconds.**	**2 Minutes.**	**On.**	**1 Minute.**	**5 Minutes.**
Maximum Performance:	**Off.**	**Off.**	**Off.**	**Off.**	**15 Minutes.**
Disabled:	**Off.**	**Off.**	**Off.**	**Off.**	**Off.**
Sample Customized Profile: (To get even better battery life keep the display and volume settings as low as possible by using this custom setting.)	**2 Minutes.**	**1 Minute.**	**On.**	**1 Minute.**	**5 Minutes.**

POINT

When resuming from a Save-to-Disk suspension there will be a delay while the contents of system memory and operating parameters are loaded from the hard drive.

CAUTION

In Save-to-Disk mode there is no indication on the Status Indicator to let you know you are suspended rather than shut off from the power switch. You may want to make a habit of always trying the Suspend/Resume button before using the power switch.

Table 4-14 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Auto Save to Disk:	**Off; After 1 Hour.**	**[Off]**	**When set to `After 1 Hour` your notebook will automatically save all of system memory and the operating parameters to the hard drive and go to the pseudo-off if you leave your notebook in Suspend mode for an hour.**
Resume On Modem Ring:	**On; Off.**	**[Off]**	**Sets whether or not to Resume from a suspension state when a message is received by telephone line. This feature is not available if the Save-to-Disk mode is enabled. This feature applies to internal, external and PC Card modems.**
Resume On Time:	**On; Off.**	**[Off]**	**Sets whether or not to resume from a suspension state at a designated time. This feature is available from either the Suspend mode or the Save-to-Disk mode.**
Resume Time:	**—**	**—**	**Sets the designated time, on a 24-hour clock, when the notebook is to automatically resume operation from the Suspend state. The format of the clock setting is hours:minutes:seconds.Each segment of the time is set separately, either by incrementing or by typing in the numbers. You move between the segments with the Tab key or the Shift+Tab keys. This only applies when Resume on Time is set to On.**
Advanced Features:	**—**	**—**	**When selected, opens the Advanced Features submenu which allows setting additional power saving parameters.**

Advanced Features Submenu of the Power Menu

The Advanced Features submenu is for setting some non-time related power saving parameters. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-15 shows the names of the menu fields for the Advanced Features submenu,all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

Exiting from the Power Menu

When you have finished setting the parameters on the Power menu, you can either exit from the Setup utility or move to another menu. If you wish to exit from Setup Utility press the Esc key to go to the Exit menu. If you wish to move to another menu,use the cursor keys.

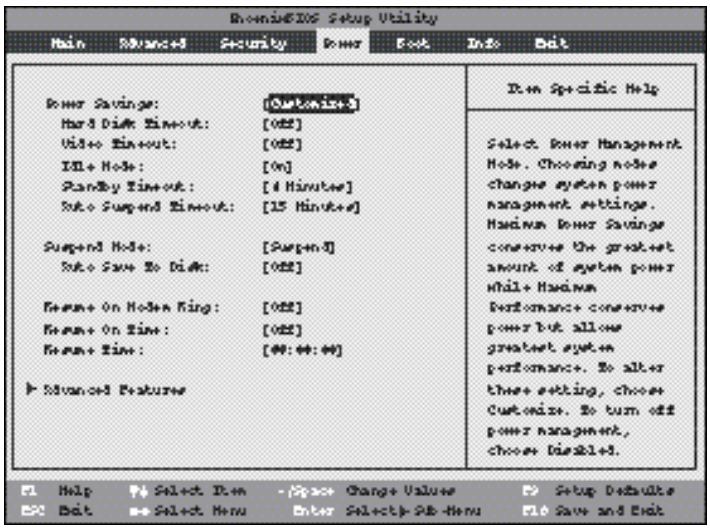

Figure 4-15 Advanced Features Submenu

Table 4-15 Fields, Options and Defaults for the Advanced Features Submenu of the Power Menu

Menu Field	Options	Default	Description
SUS/RES Switch:	**Enabled; Disabled.**	**[Enabled]**	**Sets the suspend function of the Suspend/Resume button when your notebook is in an active state. The resume function can not be disabled as it works regardless of any other settings.**
Lid Closure Suspend:	**On; Off.**	**[On]**	**Enables or disables having closure of the Display panel put your notebook in Suspend mode.**
Lid Open Resume:	**On; Off.**	**[On]**	**Enables or disables having the opening of the Display panel acting as an automatic resume.**
Resume on LAN:	**On; Off.**	**[Off]**	**Turns on or off the Magic Packet wake up from Suspend mode when your notebook is installed in the Mobile LAN Dock.**
APM CPU Idle Mode:	**Low Power; Standard.**	**[Low Power]**	**Sets the CPU speed during Idle mode.**
LCD Backlight Mode:	**Low Power; Standard.**	**[Low Power]**	**Selects the LCD Backlight mode for the display.**
Serial Mouse Activity:	**Disabled; Enabled.**	**[Disabled]**	**Enables/disables having activity on the serial port cause the system to reactivate from inactivity timeouts.**
Battery Charge Mode:	**Serial; Parallel.**	**[Parallel]**	**Selects the charging mode for the batteries.**
Clock Run:	**Disabled; Enabled.**	**[Disabled]**	**Enables/disables the PCI Bus/Card Bus clock run feature.**

BOOT MENU – SELECTING THE OPERATING SYSTEM SOURCE

The Boot Menu is used to select the order in which the BIOS searches sources for the operating system.

Table 4-16 shows the names of the menu fields for the Boot menu,all of the options for each field,the default settings and a description of the field's function and any special information needed to help understand the field's use.

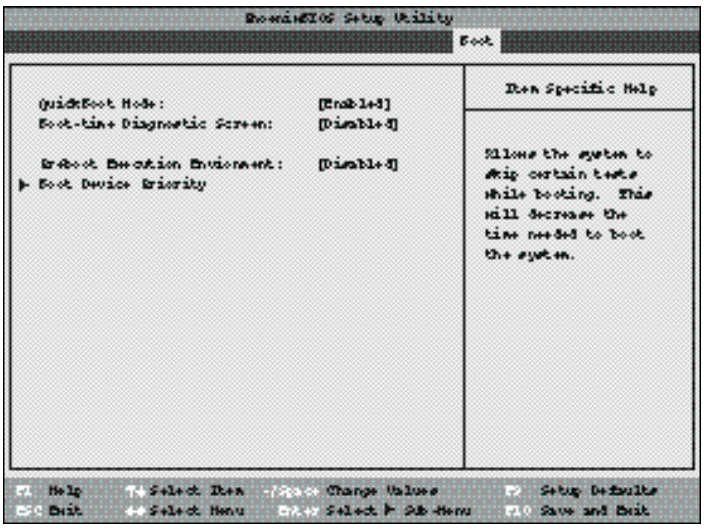

Figure 4-16 Boot Menu

Table 4-16 Fields, Options and Defaults for the Boot menu

Menu Field	Options	Default	Description
QuickBoot Mode:	**Enabled; Disabled.**	**[Enabled]**	**Turns on/off booting with a truncated set of Power On Self Test.(Fewer tests mean faster turn on.)**
Boot-time Diagnostic Screen:	**Enabled; Disabled.**	**[Disabled]**	**Turns on/ off display of test results instead of Fujitsu logo screen during Power On Self Test.**
Preboot Execution Environment:	**Enabled; Disabled.**	**[Disabled]**	**Turns on/off the preboot execution environment feature.**
Boot Device Priority:	**Selects the Boot Device Priority submenu.**	**—**	**This menu allows setting up the source for the operating system.**

The Boot Device Priority Submenu of the Boot Menu

The Boot Device Priority Submenu is for setting the order of checking of sources for the operating system. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-17 shows the names of the drives for the Boot Device Priority submenu,the default settings and a description of the field's function and any special information needed to help understand the field's use.

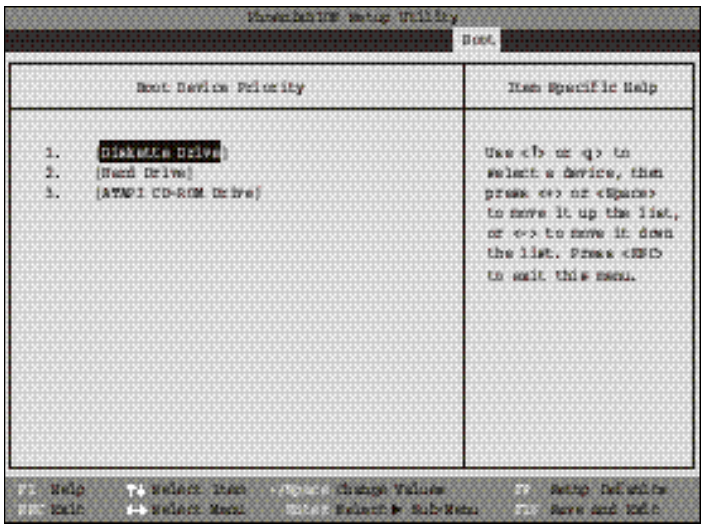

Figure 4-17 Boot Device Priority Submenu

Table 4-17 Fields, Options and Defaults for the Boot Device Priority Submenu

Menu Field	Options	Default	Description
1. Diskette Drive:	—	—	**The boot selections determine the order in which the BIOS searches for the operating system during a startup sequence. To change the order highlight one source by using the up ↑, down ↓ cursor keys and then press the + or - key to change the order number for that source. Be sure to save your changed order when you exit the BIOS setup utility.**
2. Hard Drive:	—	—	
3. ATAPI CD-ROM Drive:	—	—	

Exiting from Boot Menu

When you have finished setting the boot parameters with the Boot menu, you can either exit from the Setup Utility or move to another menu. If you wish to exit from the Setup Utility press the Esc key to go to the Exit menu. If you wish to move to another menu,use the cursor keys.

INFO MENU

The Info menu is a display only menu that provides the configuration information for your notebook.

Table 4-18 shows the names of the menu fields for the Info menu and a description of the special information needed to help understand the field.

POINT

The Asset Number is an optional user-entered field. An Asset Number can be entered through the use of a 3rd party software, such as LANdesk Client manager.

POINT

Figure 4-18 may not reflect the actual BIOS setup screen you will see on your notebook.

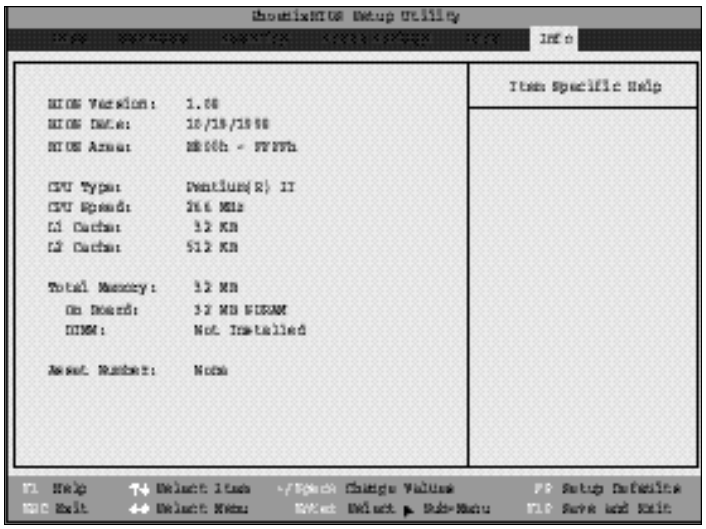

Figure 4-18 Info Menu

Table 4-18 Fields, Options and Defaults for the Info Menu

Menu Field	Options	Default	Description
BIOS Version:	—	**1.08**	—
BIOS Date:	—	**10/19/1998**	—
BIOS Area:	—	**E800h – FFFFh**	—
CPU Type:	—	**Pentium II**	—
CPU Speed:	—	**266 MHz**	—
L1 Cache:	—	**32 KB**	—
L2 Cache:	—	**512 KB**	—
Total Memory:	—	**32 MB**	—
On Board:	—	**32 MB SDRAM**	—
DIMM:	—	**Not Installed**	—
Asset Number:	—	**None**	—

EXIT MENU – LEAVING THE SETUP UTILITY

The Exit Menu is used to leave the setup utility. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 61.)*

Table 4-19 shows the names of the menu fields for the Exit menu,all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

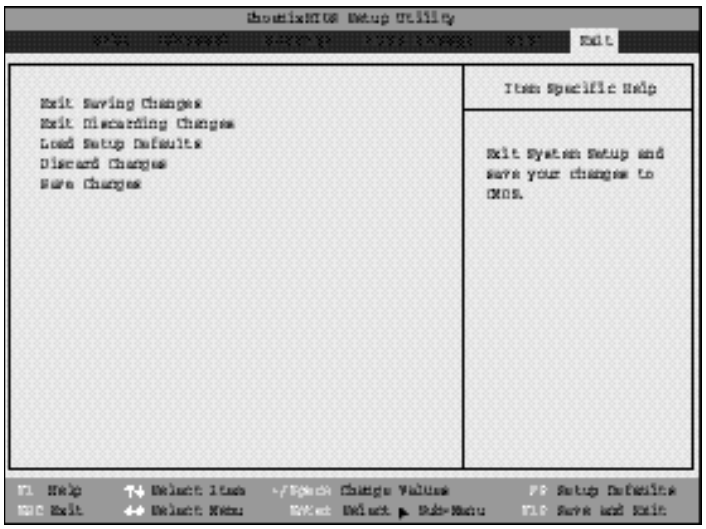

Figure 4-19 Exit Menu

Table 4-19 Fields, Options and Defaults for the Exit Menu

Menu Field	Options	Default	Description
Exit Saving Changes:	—	—	**Selecting Exit Saving Changes will store all the entries on every menu of the setup utility to the BIOS memory and then exit the setup utility. A confirmation message** `Save Configuration Changes and Exit Now? [Yes] [No]` **will be displayed.**
Exit Discarding Changes:	—	—	**Selecting Exit Discarding Changes will exit the setup utility with out writing to the BIOS memory. When the BIOS recognizes this selection it will load the operating system and begin operation. A message** `Warning Configuration Changes have not been saved. Save before exiting? [Yes] [No]` **will be displayed.**
Load Setup Defaults:	—	—	**Selecting Load Setup Defaults will load the factory preset default values for all menu fields, then display the message** `Setup Confirmation Load default configuration? [Yes] [No]` **When confirmed the setup utility will return to Exit Menu. To return to another menu follow the directions in the Navigating Through the Setup Utility Section.** *(See page 61.)*

Table 4-19 Fields, Options and Defaults for the Exit Menu

Menu Field	Options	Default	Description
Discard Changes:	—	—	**Selecting Discard Changes will load the previous values in BIOS memory for all menu fields.** `Setup Confirmation Load Previous Configuration now? [Yes] [No]` **When confirmed the setup utility will return to the Exit menu. To return to another menu, follow the directions in the Navigating Through the Setup Utility Section.** *(See page 61.)*
Save Changes:	—	—	**Selecting Save Changes will cause the new settings in all menus to be written to the BIOS memory.** `Setup Confirmation Save Configuration changes now? [Yes] [No]` **When confirmed the setup utility will return to the Exit menu. To return to another menu, follow the directions in the Navigating Through the Setup Utility section.** *(See page 61.)*

SETTING UP YOUR SAVE-TO-DISK FILE ALLOCATION

Your notebook comes with an allocation of space on the internal hard drive adequate to operate the Save-to-Disk function for the amount of memory installed at the factory. If you add a memory upgrade module or do not use the Save-to-Disk function and wish to free up the disk space, you will need to change your allocation. The utility to change the allocations is PHDISK.EXE and is activated from the MS-DOS prompt.

PHDISK allows you to perform five different functions related to the Save-to-Disk space on your internal hard drive. They are:

1. **Allocate a space for the Save-to-Disk function.**
2. **Remove all space allocation for the Save-to-Disk function.**
3. **Find out details about the hard drive and the current Save-to-Disk space allocation.**
4. **Re-allocate space and mark bad blocks in the space allocated to the Save-to-Disk function when a disk error has occurred.**
5. **Find out how much space is needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive.**

To find out how much space is needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive, do the following:

1. **Restart your notebook in MS-DOS mode.**
2. **At the DOS prompt type**
   `CD C:\Fujitsu`
3. **Type** `PHDISK`
4. **Press the Enter key.**

The screen will display the amount disk space needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive.

To find out details about the hard drive and the current Save-to-Disk space allocation, do the following:

1. **Restart your notebook in MS-DOS mode.**
2. **At the DOS prompt type**
   `CD C:\Fujitsu`
3. **Type** `PHDISK /INFO`
4. **Press the Enter key.**
5. **The screen will display the size of the space currently allocated to the Save-to-Disk function and other parameters about the space and the hard drive.**

To remove all space allocation for the Save-to-Disk function, do the following:

1. **Go to the Start Menu and select MS-DOS Prompt.**
2. **Type** `CD C:\Fujitsu`
3. **Type** `PHDISK /DELETE /FILE`
4. **Press the Enter key.**

The utility will remove the space allocation for the Save-to-Disk function and free that space for other use.

To create a space allocation for the Save-to-Disk function, do the following:

1. **Restart your notebook in MS-DOS mode.**
2. **Type** `CD C:\Fujitsu`
3. **Type** `PHDISK /CREATE /FILE`
4. **Press the Enter key.**
5. **The utility will create a Save-to-Disk file called SAVE2DSK.BIN in the root directory. It will be of the minimum size needed to support the Save-to-Disk function with the current memory configuration.**

If you have had a read or write error when you tried to perform a Save-to-Disk operation you can re-allocate space to compensate for bad blocks on your drive. To do this:

1. **Go to the MS-DOS prompt.**
2. **Type** `CD C:\Fujitsu`
3. **Type** `PHDISK /REFORMAT /FILE`
4. **Press the Enter key.**
5. **The utility will re-create the Save-to-Disk file called SAVE2DSK.BIN with the same usable size and any bad blocks marked.**

CAUTION

Never use PARTITION in place of FILE with the PHDISK Utility or you will reformat your internal hard drive and all data, applications and operating system will be destroyed.

CAUTION

Using Phdisk requires that your notebook be running in real DOS mode. Since Windows NT 4.0 cannot be run in real DOS mode, you will need to either create a bootable DOS diskette and use it to boot your notebook or boot the system with the Recovery CD (the Recovery CD that came with your L-Series notebook pre-installed with Windows NT 4.0) and click the cancel button of the Recovery Program Welcome Screen to exit to DOS. Once your NT notebook is running in real DOS mode, follow the steps in the sections above to use the Phdisk utility.

User Installable Features

SECTION FIVE

USER INSTALLABLE FEATURES

Your LifeBook L Series has a number of user installable features. This section describes how to install and remove equipment for each of the expansion features. The features are:

- **A PC Card slot in the right side panel of your notebook allows you to install PC Cards,IC memory cards (SRAM card) or Zoomed Video cards.**
- **A compartment in the bottom of your notebook allows you to install a memory upgrade module.**
- **A Microphone jack on the right side of your notebook allows you to connect a mono microphone.**
- **A Stereo Line In jack on the right side of your notebook allows you to connect a sound source such as a cassette recorder.**
- **A Headphone jack on the right side of your notebook allows you to connect headphones or powered speakers.**
- **A PS/2 port on the rear panel of your notebook allows you to connect an external mouse or an external keyboard or numeric keypad.**
- **An External Floppy Disk Drive port on the rear panel allows you to connect an optional external floppy disk drive. This allows you to use a floppy disk drive when you are not using the Detachable Bay or have a CD-Rom in the Detachable Bay.**
- **A USB port in the rear panel of your notebook allows you to connect a Universal Serial Bus device.**
- **An RJ-11 jack in the right side panel of your notebook allows you to connect a telephone line to the internal modem.**
- **A Docking port in the bottom of your notebook allows the connection of a Detachable Bay or Mobile LAN Dock.**
- **A Parallel port in the back of your notebook allows you to connect a parallel printer, a parallel photo or image scanner, etc.**
- **A Serial port in the back of your notebook allows you to connect serial RS-232C devices, such as serial printers or serial scanners.**
- **An External Monitor port in the back of your notebook allows you to connect an external monitor.**

POINT

Zoomed Video cards, USB ports and infrared ports are not supported by the Windows NT 4.0 operating system.

DETACHABLE BAY (MOBILE BAY UNIT)

The Detachable Bay provides your LifeBook L Series with access to a Floppy Disk Drive, CD-ROM/optional DVD Drive or optional SuperDisk Drive and can also offer extended power with a second Lithium ion Battery installed in its battery bay.

To Dock your LifeBook in the Detachable Bay Unit

Your notebook can be docked in the Detachable Bay while the power is on (Hot Dock/Hot-Undock) or while the power is off (Cold Dock/Cold-Undock). To Hot Dock or Hot-Undock your notebook, follow the procedure for the operating system provided with your notebook. The procedure to Cold Dock or Cold-Undock your notebook is the same regardless of operating system.

CAUTION

Whenever you use the notebook in combination with the Detachable Bay, always open the Keyboard Tilt Feet on the Detachable Bay. This will stabilize your notebook.

CAUTION

Before undocking your LifeBook from the Detachable Bay Unit be sure to remove any CD or disk you may have in the Multi-function Bay. Otherwise, your CD or disk may be damaged.

Using the Detachable Bay with Windows 95 or Windows 98

To Hot Dock your Notebook in the Detachable Bay with Windows 95 or Windows 98:

1. **Place your notebook on a flat surface, cover still open,facing away from you. Tilt out the adjustment feet on the bottom of the Detachable Bay and set it near the notebook, right side up, rear panel toward you.**
2. **Grasp your notebook firmly on both sides and tip it up so that the bottom is facing you.**
3. **While keeping firm hold of your notebook with one hand, take the Detachable Bay in the other hand and insert the metal Docking Hooks on the Detachable Bay into the Detachable Bay Slots on the bottom of your notebook.** *(See Figure 5-1.)*
4. **Push the Detachable Bay toward the bottom of the notebook until they click together and the Docking Latches on the Detachable Bay slip into the Detachable Bay Locking Indentations on the rear panel of your notebook.** *(See Figure 5-2.)*
5. **Slide the Docking Lock Switch on the bottom of the Detachable Bay to the locked position.**

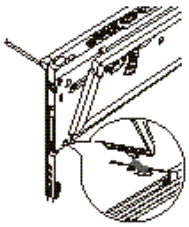

Figure 5-1 Docking Hook Insertion into Detachable Bay Slots

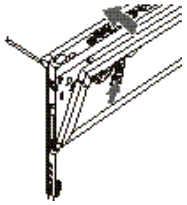

Figure 5-2 Docking the Notebook in the Detachable Bay

6. **Set the combined notebook system down on the adjustment feet and turn it around to face you.** *(See Figure 5-3.)*

7. **Your notebook is ready to use.**

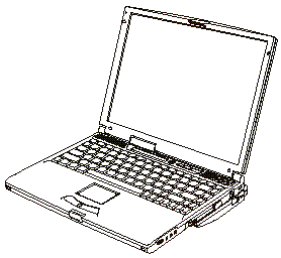

Figure 5-3 Notebook Docked in Detachable Bay

To Hot-Undock your Notebook from the Detachable Bay with Windows 95 or Windows 98:

1. **From the Start menu,select Eject PC or press the Undock Request button on the right side of the Detachable Bay.**

2.A **Dock Change alert will appear briefly. Wait for the Docking Indicator to illuminate.**

3. **Turn your system around so that it faces away from you.**

4. **Grasp your notebook on both sides and tip it up so that the bottom is facing you.**

5. **While keeping firm hold of your notebook with one hand, slide the Docking Lock Switch to the unlocked position.** *(See Figure 5-4.)*

6. **Depress the Docking Latch Release button on the bottom of the Detachable Bay and gently pull the Detachable Bay away from the notebook.**

7. **Set the Detachable Bay aside. Set your notebook down and turn it around to face you.**

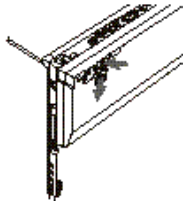

Figure 5-4 Unlatching the Detachable Bay

Figure 5-5 Undocking the Notebook from the Detachable Bay

10. **Your notebook is ready to use.**

Using the Detachable Bay with Windows NT 4.0

To Hot Dock your Notebook in the Detachable Bay with Windows NT 4.0:

1. **Place your notebook on a flat surface, cover still open,facing away from you. Tilt out the adjustment feet on the bottom of the Detachable Bay and set it near the notebook, right side up, rear panel toward you.**
2. **Grasp your notebook firmly on both sides and tip it up so that the bottom is facing you.**
3. **While keeping a firm hold of your notebook with one hand,take the Detachable Bay in the other hand and insert the metal Docking Hooks on the Detachable Bay into the Detachable Bay Slots on the bottom of your notebook.** *(See Figure 5-1.)*
4. **Push the Detachable Bay toward the bottom of the notebook until they click together and the Docking Latches on the Detachable Bay slip into the Detachable Bay Locking Indentations on the real panel of your notebook.** *(See Figure 5-2.)*
5. **Slide the Docking Lock Switch on the bottom of the Detachable Bay to the locked position.**
6. **Set the combined notebook system down on the adjustment feet and turn it around to face you.** *(See Figure 5-3.)*
7. **A System Device Change alert will appear briefly, followed by a Device ConFigured window; click the OK button.**
8. **Your notebook is ready to use.**

To Hot-Undock your Notebook from the Detachable Bay with Windows NT 4.0:

1. **Press the Undock Request button on the right side of the Detachable Bay.**
2. **A System Device Change alert will appear briefly. A Device Removal Warning window will appear; click OK.**
3. **A device removal window will appear; click OK.**
4. **Wait for the Docking Indicator to illuminate**
5. **Turn your system around so that it faces away from you.**
6. **Grasp your notebook on both sides and tip it up so that the bottom is facing you.**
7. **While keeping a firm hold of your notebook with one hand,slide the Docking Lock Switch to the unlocked position.** *(See Figure 5-4.)*
8. **Depress the Docking Latch Release button on the bottom of the Detachable Bay and gently pull the Detachable Bay away from the notebook.**
9. **Set the Detachable Bay aside. Set your notebook down and turn it around to face you.**
10. **Your notebook is ready to use.**

Cold Docking and Cold-Undocking the Detachable Bay

To Cold Dock your Notebook in the Detachable Bay:

1. **Shut down your notebook and close the cover. Place it gently down on its cover with the back panel facing you.**
2. **Insert the metal Docking Hooks on the Detachable Bay into the Detachable Bay Slots on the bottom of your notebook.** *(See Figure 5-6.)*

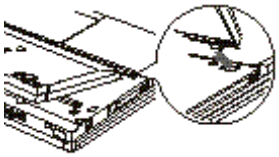

Figure 5-6 Docking Hook Insertion into Detachable Bay Slots

Figure 5-7 Latching the Notebook in the Detachable Bay

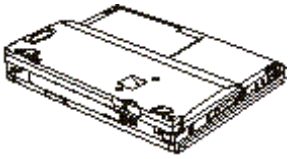

Figure 5-8 Notebook Docked in Detachable Bay

3. Push the Detachable Bay toward the bottom of the notebook until they click together and the Docking Latches on the Detachable Bay slip into the Detachable Bay Locking Indentations on the real panel of your notebook. *(See Figure 5-7.)*

4. Slide the Docking Lock Switch on the bottom of the Detachable Bay to the locked position.

6.Flip the adjustment feet on the bottom of the Detachable Bay out,pick up the combined notebook system,and turn it right-side up facing you.

7. Your notebook is ready to use.

To Cold-Undock your Notebook from the Detachable Bay:

1.Shut down your notebook.

2. Close the cover and gently place the notebook down on its cover with the back panel facing you.

3. Slide the Docking Lock Switch to the unlock position.

4 Depress the Docking Latch Release Button and gently pull the Detachable Bay up and away from the bottom of your notebook until the Docking Latches are clear of the notebook.

5. Pull the Detachable Bay toward you to remove the metal Docking Hooks from the slots on the bottom of your notebook.

6. Set the Detachable Bay aside.Pick up your notebook and turn it right-side up facing you.

7. Your notebook is ready to use.

Using your LifeBook with the Detachable Bay Unit Attached

With the Detachable Bay Unit you have a modular device bay with the capability to add:

- **A floppy disk drive.**
- **A CD-ROM drive.**
- **A Weight Saver.**

- **An optional DVD drive.**
- **An optional SuperDisk drive.**
- **An optional Second Lithium ion Battery.**

DETACHABLE BAY UNIT DEVICES

You can install and remove devices in the Detachable Bay while the power is on (Hot-Swap) or while the power is off (Cold-Swap). To Hot-Swap devices in the Detachable Bay, follow the procedure for the operating system provided with your notebook. The procedure to Cold-Swap devices in the Detachable Bay is the same regardless of operating system.

POINT

Because the Weight Saver is not an electronic device, the system will not recognize it, and Windows will not reconFigure your system in a docked configuration.

Hot-Swapping Devices in the Detachable Bay with Windows 95 or Windows 98

Removing a Device from the Detachable Bay:

1. **Close any open files on the removable device that you plan to eject from the Multi-function Bay.**
2. **From the Start menu,select Eject PC or press the Undock Request button on the right side of the Detachable Bay.**
3. **A Dock Change alert will appear briefly. Wait for the Undock OK indicator LED to come on.**
4. **Slide the Bay Device Lock at the left rear corner of the Detachable Bay out from the unit.** *(See Figure 5-9)*
5. **Slide the device in the Multi-function bay out until the device is clear of the compartment. This will require some force. Use the finger ridges on the bottom of the device.** *(See Figure 5-9.)*
6. **Once the device has been removed from the Detachable Bay, the Undock OK indicator LED will go out and the Eject PC command will no longer be available in the Start menu.**

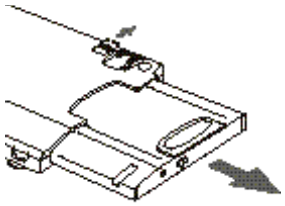

Figure 5-9 Removing a Device from the Detachable Bay

Installing a Device in the Detachable Bay:

1. **Orient the item to be installed with the connector end toward the open Multi-function Bay.**
2. **With the connector toward the back of the Multi-function Bay, align the grooves on the underside of the device with the tracks in the bottom of the bay.**

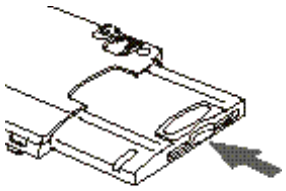

Figure 5-10 Installing a Device in the Detachable Bay

3. Slide the device into the Multi-function Bay until it clicks into place. *(See Figure 5-10.)*

4.A Dock Change alert will appear briefly. Windows will conFigure the new device and assign the drive letters that will appear in the My Computer folder and in Windows Explorer. The Eject PC command will reappear in the Start menu.

Hot-Swapping Devices in the Detachable Bay with Windows NT 4.0

Removing a Device from the Detachable Bay:

1. Close any open files on the removable device that you plan to eject from the Multi-function Bay.

2. Press the Undock Request button on the right side of the Detachable Bay.

3.A System Device Change alert will appear briefly. A Device Removal Warning window will appear; click OK.

4.A Device Removal window will appear; click OK.

5. Wait for the Undock OK indicator LED to come on.

6. Slide the Bay Device Lock at the left rear corner of the Detachable Bay out from the unit. *(See Figure 5-9.)*

5. Slide the device in the Multi-function bay out until the device is clear of the compartment. This will require some force. Use the finger ridges on the bottom of the device. *(See Figure 5-9.)*

7.Once the device has been removed from the Detachable Bay, the Undock OK indicator LED will go out

Installing a Device in the Detachable Bay:

1. Orient the item to be installed with the connector end toward the open Multi-function Bay.

2. With the connector toward the back of the Multi-function Bay, align the grooves on the underside of the device with the tracks in the bottom of the bay.

3. Slide the device into the Multi-function Bay until it clicks into place. *(See Figure 5-10.)*

4.A System Device Change alert will appear briefly. A Device ConFigured window will appear; click OK to continue.

POINT

The first time you Hot-Swap the SuperDisk Drive, the system will prompt you to reboot. Reboot the notebook in order to properly conFigure the SuperDisk Drive.

Cold-Swapping Devices in the Detachable Bay

Removing a Device from the Detachable Bay:

1. **Close any open files on the removable device that you plan to eject from the Multi-function Bay.**
2. **Shut down your notebook.**
3. **Slide the Bay Device Lock at the left rear corner of the Detachable Bay out from the unit.** *(See Figure 5-9.)*
4. **Slide the device in the Multi-function bay out until the device is clear of the compartment. This will require some force. Use the finger ridges on the bottom of the device.** *(See Figure 5-9.)*

Installing a Device in the Detachable Bay:

1. **Orient the item to be installed with the connector end toward the open Multi-function Bay.**
2. **With the connector toward the back of the Multi-function Bay, align the grooves on the underside of the device with the tracks in the bottom of the bay.**
3. **Slide the device into the Multi-function Bay until it clicks into place.** *(See Figure 5-10.)*
4. **Power on your notebook.**

CD-ROM Drive or DVD Drive

Your CD-ROM drive or optional DVD drive *(See Figure 5-11)* **is durable but you must treat it with care.Please pay attention to the following points:**

- **The drive rotates the compact disk at very high speed. Do not carry it around or subject it to shock or vibration with the power on.**
- **Avoid using or storing the drive or CDs where they will be exposed to extreme temperatures.**
- **Avoid using or storing the drive or CDs where it is damp or dusty.**
- **Avoid using or storing the drive near magnets or devices that generate strong magnetic fields.**
- **Avoid storing the drive where it will be subjected to shock or vibration.**
- **Do not disassemble or dismantle the CD-ROM drive or DVD drive.**

For guidance on loading a CD in your CD-ROM drive or DVD drive and caring for CDs see Section Three. *(See pages 42-43.)*

POINT

DVD playback is not yet supported in Windows NT 4.0.

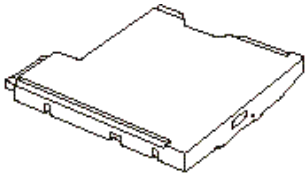

Figure 5-11 CD-ROM/DVD Drive

Optional SuperDisk 120 Drive

An optional Imation SuperDisk 120 drive,using Super floppy disks with a capacity of 120MB and standard floppy disks,can be installed in the Detachable Bay Unit. *(See Figure 5-12.)*

Floppy Disk Drive

The floppy disk drive can be installed in the Detachable Bay Unit. In addition, the floppy disk drive may be used externally when the Bay is needed for other uses by use of an external floppy adapter (optional). *(Figure 5-12. For information on the care and use of floppy disk drives see Floppy Disk Drive in Section Three on pages 339-40. To install the floppy disk drive externally, see External Installation of a Floppy Disk Drive on page 130.)*

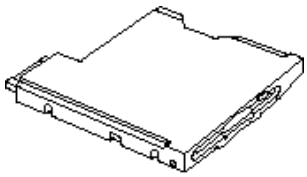

Figure 5-12 Floppy disk Drive or Superdisk 120 Drive

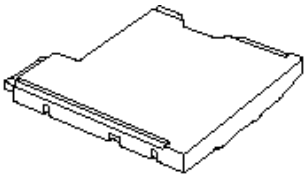

Figure 5-13 Weight Saver

Weight Saver

The Weight Saver bay device can be installed in the Detachable Bay and is used to fill the bay when no device is used. *(Figure 5-13.)*

OPTIONAL SECOND LITHIUM ION BATTERY

The Detachable Bay Unit has another bay for a second Lithium ion battery. The internal battery in your notebook is exactly the same as the optional second battery. This optional second battery is durable and long lasting but should not be exposed to extreme temperatures,high voltages, chemicals or other hazards. Batteries should be removed and stored separately in a cool dry place if your notebook is not going to be used for an extended period of time.

The second Lithium ion battery is for use in a dual configuration with the internal Lithium ion battery and will operate in parallel or serial with that battery. Parallel or serial operation is set in the BIOS. *(See the Advanced Submenu of the Power Menu, pages 106–107)***.**

CAUTION

Under federal, state or local law it may be illegal to dispose of batteries by putting them in the trash. Please take care of our environment and dispose of batteries properly. Check with your local government authority for details regarding recycling or disposing of your old battery, or contact your support representative at 1-800-8FUJITSU (1-800-838-5487).

POINT

Remove the battery from your notebook if the notebook will not be used for an extended period of time.

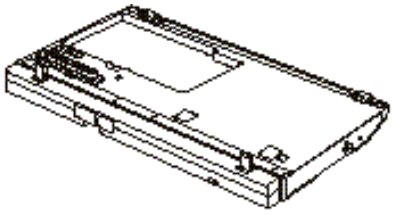

Figure 5-14 Positioning the Detachable Bay for Battery Installation

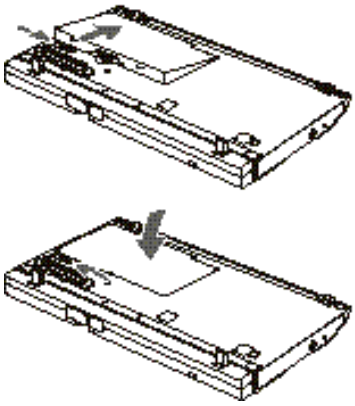

Figure 5-15 Installing a Battery in the Detachable Bay

Installing the Battery in the Detachable Bay

1. **Remove the Detachable Bay from your notebook by following the undocking procedure (earlier in this section) for your operating system.**
2. **Set your Detachable Bay right side up with the rear panel toward you on a flat surface.** *(See Figure 5-14.)*
3. **Slide the Battery Lock to the unlocked position.** *(See Figure 5-15.)*
4. **Arrange the battery with the notched side away from you and the connector toward you and facing down.** *(See Figure 5-15.)*
5. **Insert the battery at an angle,notched side first,into the Battery Bay and push it away from you as far as it will go.** *(See Figure 5-15.)*
6. **Push down the near edge of the battery until it is flush with the surface of the Detachable Bay. Slide the Battery Lock to the locked position.** *(See Figure 5-15.)*

Removing the Battery from the Detachable Bay

1. **Remove the Detachable Bay from your notebook by following the undocking procedure in the manual that came with the Detachable Bay.**
2. **Set your Detachable Bay right side up with the rear panel toward you on a flat surface.**

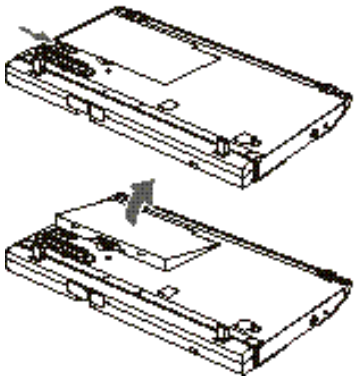

Figure 5-16 Removing a Battery from the Detachable Bay

3. Depress the Battery Release button and slide the Battery Lock to the unlocked position.

4.Gently pry up the near side of the battery using the depression in front of the middle of the Battery Bay.

5.Lift the near edge of the battery out of the Battery Bay and remove.

EXTERNAL INSTALLATION OF A FLOPPY DISK DRIVE

To install an optional external floppy disk drive, you must purchase an optional external floppy disk drive or an optional floppy disk cable.

To Connect An Optional External Floppy Disk Drive:

1. Align the connector of the optional external floppy disk drive with the connector towards the rear of your notebook with the wide side of the connector down. *(Figures 5-17 and 5-18.)*

2. Insert the connector of the modular floppy disk drive firmly into the port on your notebook until it clicks.

To Disconnect An Optional External Floppy Disk Drive:

1. Squeeze the releases on the sides of the optional external floppy disk drive connector next to the body of your notebook together. *(Figures 5-17 and 5-18.)*

2. Pull the connector free.

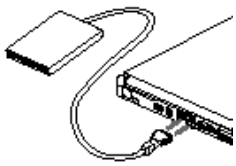

Figure 5-17 Installation of an optional External Floppy Disk Drive

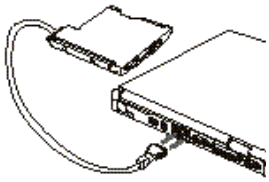

Figure 5-18 External Installation of a Modular Floppy Disk Drive with optional cable

PC CARDS

PC Cards perform a wide variety of functions, and are ideal for mobile computers.

Some examples of PC Cards are:

- **Fax/data modem cards (Type II).**
- **Local area network (LAN) cards (Type II).**
- **Wireless LAN cards (Type II).**
- **1MB/2MB static RAM (SRAM) cards (Type I).**
- **IDE solid-state disk cards (Type II).**
- **SCSI card (Type II).**
- **Zoomed Video cards (Type II). (Windows 95/Windows 98 only)**
- **ATA card (Type III).(To be used with the optional Mobile LAN Dock.)**
- **Other PC cards that conform to PCMCIA 2.1 or PC CardBus standards.**

For further information, refer to the instructions supplied with your PC Card.

POINT

Windows NT 4.0 does not support Zoomed Video cards.

Caring for PC Cards

PC Cards are durable; however, you must treat them with care. The documentation supplied with your PC Card will provide specific information; however, you should pay attention to the following points:

- **To keep out dust and dirt, store PC Cards in their protective sleeves when they are not installed in your notebook.**
- **Avoid prolonged exposure to direct sunlight or excessive heat.**
- **Keep the cards dry.**
- **Do not flex or bend the cards,and do not place heavy objects on top of them.**
- **Do not force cards into the slot.**
- **Avoid dropping cards, or subjecting them to excessive vibration.**

Installing PC Cards in Your Notebook

PC cards are installed in the PC Card slot in the right side panel of your notebook. Some PC Cards will not work when all possible devices are enabled. If a PC Card is not recognized, you will need to use the Control Panel, System and then Device Manager and choose a system to disable some device so that the resources can be used by the PC Card.

CAUTION

Do not insert a PC Card into a slot if there is water or any other substance on the card. If you do, you may permanently damage the card, your notebook, or both.

To install a PC Card:

1. **See your PC Card manual for instructions on installation of that specific card.**
2. **Make sure that there is not already a PC Card in the slot. If there is, eject it,as described in Removing PC Cards.**

POINT

The L Series internal PC Card slot is a Zoom Video slot.

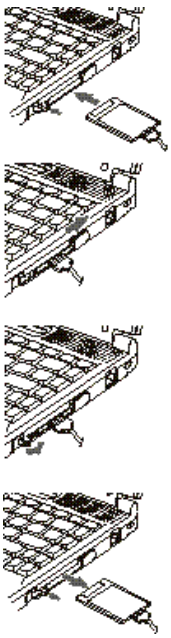

Figure 5-19 Installation of an External Floppy Disk Drive

CAUTION

Installing or removing a card while your notebook is in the process of going through the power on or power off sequence may damage the card and/or your notebook.

3. **Insert the PC Card in the card slot, with the product name label facing up.** *(See Figure 5-19.)*
4. **The PC Card is fully inserted when the eject button pops out.**
5. **Flip this button toward the front of your notebook to fold it out of the way.**
6. **When the card is installed,lock it in place by sliding the lock button to the right.** *(See Figure 5-19.)*

CAUTION

Windows 95 has a shutdown procedure for PC Cards that must be followed before beginning to remove a card.

Removing PC Cards – Windows 95 or Windows 98 only

If you wish to remove or replace the PC Card, use the following procedure:

1. **Shutdown operation of the card.**
2. **Click on the PC Card indicator on the Windows taskbar.**

From the PC Card Properties Window:

3. **Select the card to be removed and click on the Stop button.**
4. **Verify that the** `You can safely remove your card` **message appears.**
5. **If the** `device cannot be removed` **message appears, save all files, close all applications,and exit Windows 95 and then shutoff the power with the power switch.** *(See Power Off on page 21.)*
6. **Slide the lock toward the rear of your notebook to release the card(s).**
7. **Flip the eject button(s) toward the rear of your notebook until it is fully extended.**
8. **Press the eject button in until it is flush with the side of your notebook.**
9. **Grab the card and pull it clear of your notebook.** *(See Figure 5-19.)*

CAUTION

If the PC Card has an external connector and cable, do not pull on this cable when removing the card.

PARALLEL PORT DEVICES

To connect a parallel interface device to the parallel port, be sure that the connector is the right size and aligned,then push in until it is fully seated. When it is seated tighten the hold-down screws, one on each end of the connector. *(See Figure 1-9 on page 8.)*

SERIAL PORT DEVICES

To connect an RS-232C device to the serial port, be sure that the connector is the right size and aligned, then push in until it is fully seated. When it is seated tighten the hold-down screws, one on each end of the connector. *(See Figure 1-9 on page 8.)*

USB DEVICES

When installing a device on the USB Port, be sure that the connector is the right size,aligned, and fully seated. *(See Figure 1-9 on page 8.)*

POINT

Windows NT 4.0 does not support USB devices.

CAUTION

Due to the limitations of Windows 95 at the time USB technology was evolving, not all USB devices and/or drivers are guaranteed to work with Windows 95.

MICROPHONE

Make sure that your mono microphone is equipped with an 1/8" (3.5 mm) mono mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. *(See Figure 1-8 on page 6.)*

STEREO LINE IN DEVICE

Make sure that your stereo line in audio device, a cassette recorder, for example, is equipped with an 1/8" (3.5 mm) stereo mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. *(See Figure 1-8 on page 6.)*

HEADPHONES

Make sure that your stereo headphones are equipped with an 1/8" (3.5 mm) stereo mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. *(See Figure 1-8 on page 6.)*

POINT

Plugging in headphones disables the built-in stereo speakers.

TELEPHONE LINES

To attach a telephone line to the internal modem, locate the RJ-11 jack on the right side of your notebook.Plug one end of the telephone cable into the telephone line outlet. Orient the telephone cable with the release latch on the connector up. Push it into the jack until it clicks and latches. *(See Figure 1-8 on page 6.)*

CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.

MOUSE, KEYBOARD OR KEYPAD

Make sure the connector on your device is the correct PS/2 type. Align the arrow on the connector to point to the bottom of your notebook and push it in until the connector seats. A mouse, keyboard or keypad may be installed and automatically recognized by your notebook without restarting or changing setups. *(See Figure 1-9 on page 8.)*

EXTERNAL MONITOR

You may install an external monitor on the external monitor port on the rear panel of your notebook. Make sure that the wide side of the connector is up and attach it to the port by pushing in until it is seated, then tighten the hold-down screw on each end of the connector. *(See Figure 1-9 on page 8.)*

CAUTION

Pressing **F10** while holding down the **Fn** key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, or both built-in display panel and external monitor.

THEFT PREVENTION LOCK

A physical security system lock can be installed on the right side of your notebook. *(See Figure 1-8 on page 6 for the location of the lock slot.)* **Simply insert the key end of your security system in the slot, rotate 90 degrees and lock.** *(See Figure 1-8 on page 6.)*

MEMORY UPGRADE MODULE

Your notebook has 32MB of installed SDRAM. To increase your memory capacity you may install a memory upgrade module in the memory upgrade compartment in the bottom of your notebook.A memory upgrade module is a dual-in-line memory module (DIMM). You may add a module of different capacity. SDRAM memory upgrade modules are required.

CAUTION

Never remove screws except the ones specifically shown in the directions for installing and removing the memory upgrade module.

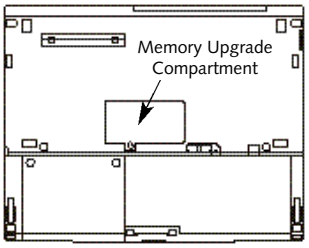

Figure 5-20 L Series Memory Upgrade Compartment

To Install a Memory Upgrade Module

1. **Turn off power to your notebook using the power switch,** *(see Power Off on page 21)*, **and remove any power adapter (AC or auto/airline).**
2. **Make sure that all the connector covers are closed.**
3. **Turn the notebook bottom side up, with the front panel toward you.**
4. **Remove the screw of the memory upgrade compartment.** *(See Figure 5-21.)*

5. **Remove the cover by lifting it by the notch in the front edge and pulling it toward the front of the notebook.**

CAUTION

Memory upgrade modules can be severely damaged by electro-static discharge (ESD). Be sure you are properly grounded when handling and installing the module.

6. **Remove the memory upgrade module from its static guarded sleeve.**
7. **Align the connector edge of the memory upgrade module with the connector slot in the compartment. The notch on the module should be on the right with the part side up and the connector pointing towards the back of the notebook and aligned with the notch in the connector inside the compartment.** *(See Figure 5-21.)*

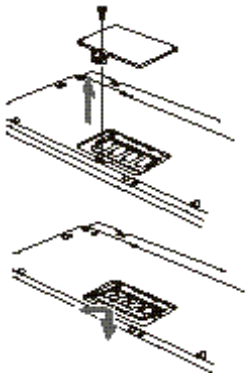

Figure 5-21 Memory Upgrade Installation

8. **Insert the memory upgrade module at a 45° angle.** *(See Figure 5-21.)* **Press the connector edge of the module firmly down and into the connector.**
9. **Press the memory upgrade module down into the compartment until it lodges under the retaining clip. You will hear a click when it is properly in place.**
10. **Replace the cover by sliding the tabs on the rear edge of the cover in the slots in the rear edge of the compartment and pushing the cover gently down starting with the rear edge and working toward the front until the entire cover is flush with the bottom of your notebook.**
11. **Replace the screws.**

Memory upgrade modules are not something you routinely remove from your notebook. Once it is installed, leave it in place unless you want to increase system memory capacity.

CAUTION

Before you install or remove a memory upgrade module, save changes, close all files and turn power off to your notebook. *(See Power Off on page 21.)*

To Remove a Memory Upgrade Module

1. **Perform steps 1 through 5 of To Install a Memory Upgrade Module.**
2. **Pull clips sideways from each side of the memory upgrade module.**
3. **While holding clips out, remove the module from the slot by lifting it up and pulling towards the front of your notebook.**
4. **Store the memory upgrade module in a static guarded sleeve.**
5. **Replace the cover by following the instructions in steps 10 through 11 of the instructions of To Install a Memory Upgrade Module, or install new memory upgrade modules and then replace the cover by following the instructions in steps 6 through 11 of the instructions of To Install a Memory Upgrade Module.**

Checking the Computer Recognition of New Memory Capacity

When you have changed system memory capacity by adding or removing memory upgrade modules, be sure to check that your notebook has recognized all of the active memory. You can check memory capacity by looking at the Main Menu of the setup utility:

1. **Turn on power using the power switch.**
2. **Enter the setup utility by pressing the F2 key as soon as the Fujitsu logo appears on the screen.** *(See page 60.)*
3. **The System Memory and the Extended Memory capacity, as detected by your notebook during the Power On Self Test (POST), are displayed at the bottom of the Main Menu screen.**

Example:A system with 32MB of memory will display 640K System Memory, 31M Extended Memory.

When you have installed additional memory, the display should change. For example for:

Total RAM Installed	System Memory	Extended Memory
32MB	640 K	31M
48 MB	640 K	48.5M
64 MB	640 K	64M
96 MB	640 K	95M
160 MB	640 K	159M

If the total memory displayed is not what you believe it should be, check that your memory upgrade module is properly installed. If properly installed and the capacity is not correctly recognized, see the Troubleshooting Section starting on page 140.

INTERNAL BATTERY

The internal Lithium ion Smart battery is in a compartment in the bottom of your notebook. Remove it only for replacement or long term storage. *(See Figure 1-10 on page 8.)*

OPTIONAL MOBILE LAN DOCK

The Mobile LAN Dock provides several advantages when using your LifeBook notebook. In addition to providing an integrated floppy disk drive and CD-ROM drive,it provides a means to have a desktop configuration of connected devices without having to replug each device everytime you use your notebook away from your desk,plus adding some additional functions not included in your notebook. It has a slot for two Type II/one Type III PC Cards and an additional battery bay which can also charge a battery. The Mobile LAN Dock allows you to connect:

- **An RS-232C Serial device.**
- **A parallel device.**
- **An external VGA/SVGA/XGA monitor.**
- **An external mouse (PS/2).**
- **An external keyboard (PS/2).**
- **A 10/100 Base-T Ethernet line (RJ-45).**
- **Two USB devices.**
- **Stereo headphones.**
- **An NTSC/PAL video device (television).**
- **External speakers.**

The Mobile LAN Dock comes with a battery bay cover. Keep the battery bay cover on the battery bay when there is no battery installed to protect the bay against dust.

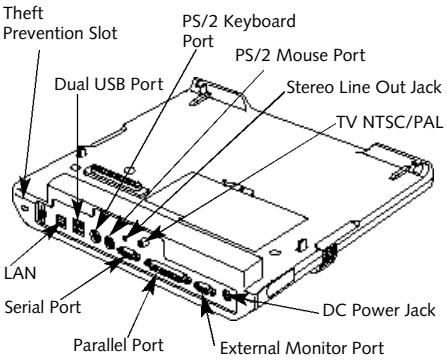

Figure 5-22 Mobile LAN Dock Back View

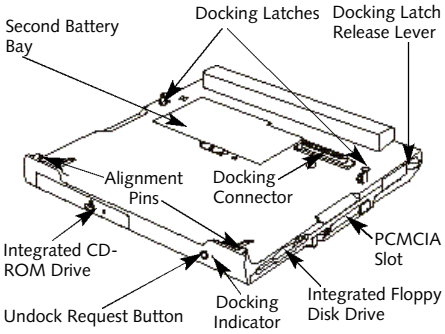

Figure 5-23 Mobile LAN Dock Front View

POINT

Consult the documentation that comes with your optional Mobile LAN Dock for specific information on its use.

Toubleshooting

SECTION SIX

TROUBLESHOOTING

The LifeBook Series from Fujitsu is sturdy and subject to few problems in the field. However, you may encounter simple setup or operating problems that you can solve on the spot, or problems with peripheral devices,that you can solve by replacing the device. The information in this section helps you isolate and resolve some of these straightforward problems, and identify failures that require service.

IDENTIFYING THE PROBLEM

If you encounter a problem, go through the following procedure before pursuing complex troubleshooting:

1. **Turn off your notebook using the power switch on the left side panel.**
2. **Make sure the AC adapter is plugged into your notebook and to an active AC power source.**
3. **Make sure that any card installed in the PC Card slot is seated properly. You can also remove the card from the slot,thus eliminating it as a possible cause of failure.**
4. **Make sure that any devices connected to the external connectors are plugged in properly. You can also disconnect such devices,thus eliminating them as possible causes of failure.**
5. **Turn on your notebook using the power switch. Make sure it has been off at least 10 seconds before you turn it on.**
6. **Go through the boot sequence.**
7. **If the problem has not been resolved, refer to the problem guide table, which follows, for more detailed troubleshooting information.** *(Page 141 has an index to the table.)*

POINT

If you keep notes about what you have tried, your support representative may be able to help you more quickly by giving additional suggestions over the phone.

CAUTION

Do not return a failed notebook to your supplier until you have talked to a support representative.

8. **If you have tried the solutions suggested in Specific Problems without success, contact your support representative: toll free 1-800-8FUJITSU (1-800-838-5487), FAX 1-901-259-5700,e-mail 8fujitsu@fpc.fujitsu.com, Web Site http://www.8fujitsu.com. Phone and fax support is available 8:30am to 5:00pm PST.**

Before you place the call, you should have the following information ready so that the customer support representative can provide you with the fastest possible solution:

- **Product name.**
- **Product configuration number.**
- **Product serial number.**
- **Purchase date.**

- **Conditions under which the problem occurred.**
- **Any error messages that have occurred.**
- **Hardware configuration.**
- **Type of printer connected,if any. See the Unit Label on the bottom of your notebook for configuration and serial numbers.** *(See Figure 1-10 on page 8.)*

SPECIFIC PROBLEMS

Using PC-Doctor

PC-Doctor is a diagnostic program by Watergate Software, Inc. which comes pre-installed on your notebook. If your are an experienced computer user you may find it useful, however, it is intended primarily to help your Fujitsu support representative better serve you. When you call for help your support representative may ask you to setup your notebook for modem operation. You will be told what to do step by step, and then to hang up the phone and plug your phone line into the back of your notebook. Your support representative will then use the service computer to call your notebook and perform diagnostic tests to find the nature of your problem. Messages will be displayed on the screen explaining what is being done and giving any instructions that you need.

User Problem Guides

When you have problems with your notebook, try to find the symptoms under the Symptom column of the table for the feature giving you difficulty. You will find a description of common causes for that symptom under the column Possible Cause and what,if anything, you can do to correct the condition under Possible Solution. Remember that it helps to keep notes of what you have tried and the results when you are troubleshooting.

Symptom	Possible Cause	Possible Solution
Audio Problems		
There is no sound coming from the built-in speakers.	**1. The volume knob is turned too low.**	**1. Adjust the volume control knob on the right side of your notebook.**
	2. The software volume control is set too low.	**2. Adjust the sound volume control settings in your software, both operating system and applications.**
	3. Headphones are plugged into your notebook.	**3. Plugging in headphones disables the built-in speakers, remove the headphones.**
	4. BIOS audio settings are incorrect.	**4. Set the BIOS setup utility, Audio Features submenu of the Advanced menu to the default values.** *(See page 84.)*
	5. Software driver is not configured correctly.	**5. Refer to your application and operating system documentation for help.**
CD-ROM Drive Problems		
Notebook fails to recognize CD-ROM.	**1. CD-ROM is installed with label face down.**	**1. Open CD-ROM tray and re-install CD with proper orientation.**
	2. CD-ROM is not pushed down onto raised center circle of drive properly.	**2. Open CD-ROM tray and re-install CD.**
	3. CD-ROM tray is not latched shut.	**3. Push on the front of the CD-ROM tray until it latches.**

Symptom	Possible Cause	Possible Solution
	5. Setup utility is set to something other than auto or CD-ROM for the Secondary Master Controller.	**5. Revise BIOS settings to set the Secondary Master correctly.** *(See Main menu and Secondary Master submenu on page 64 for more information.)*
	6. Wrong drive designator was used for CD-ROM in the application.	**6. Verify the drive designator used by the application is the same as the one used by the operating system. When the operating system is booted from a CD-ROM drive designations are automatically adjusted.** *(See page 70.)*
	7. Windows CD auto insertion function is disabled.	**7. Start the CD from the desktop or application software or re-enable the Windows CD auto insertion function.** *(See page 28.)*
	8. Notebook is not properly installed in an Mobile LAN Dock or Detachable Bay.	**8. Remove and re-install your notebook in the Mobile LAN Dock.**
The CD-ROM Access indicator on the Status Indicator panel blinks at regular intervals when no CD is in the tray or the CD-ROM drive is not installed.	**1. The Windows CD auto insertion function is active and is checking to see if a CD is ready to run.**	**1. This is normal. You can disable this function if you wish.** *(See CD-ROM Access Indicator on pages 28-29 for more information.)*

Symptom	Possible Cause	Possible Solution
Docking Problems		
Notebook does not turn on when installed in a Mobile LAN Dock	**1. Mobile LAN Dock AC adapter is not plugged in.** **2. Notebook is not properly seated in the Mobile LAN Dock.** **3. CD auto insertion function is enabled and you are trying to operate on only the internal battery.**	**1. Provide power to the Mobile LAN Dock** **2. Remove and re-dock your notebook and verify that the Docked LED illuminates correctly.** **3. Install a charged external battery or use a power adapter (AC or auto/airline).**
Floppy Disk Drive Problems		
You cannot access your floppy disk.	**1. Security is set to protect access to floppy disk data.** **2. Floppy disk is not loaded correctly.** **3. BIOS setup utility has Diskette Controller: Disabled** **4. Your notebook may not be properly installed in the Mobile LAN Dock or Detachable Bay.** **5. You tried to write to a write protected floppy disk.**	**1. Verify your password and security settings.** **2. Eject floppy disk, check orientation and re-insert.** *(See Floppy Disk Drive on pages 39-40.)* **3. Revise the setup utility Main menu settings.** *(See Main Menu on page 62.)* **4. Remove and re-dock your notebook and verify that the Docked LED illuminates correctly.** **5. Eject the floppy disk and set it to write enabled.** *(See page 40.)*

Symptom	Possible Cause	Possible Solution
Hard Drive Problems		
You can not access your hard drive.	**1. The setup utility is set to something other than the characteristics of your internal hard drive.** **2. The wrong drive designator was used by an application when a bootable CD-ROM was used to start the notebook.** **3. Security is set so operating system can not be started without a password.**	**1. Revise BIOS settings to set the Primary Master correctly.** *(See Main Menu and Primary Master Submenu pages 62-70 for more information.)* **2. Verify drive designator used by application is in use by the operating system. When the operating system is booted from a CD-ROM, drive designations are automatically adjusted.** *(See Primary Master Submenu on pages 65-70.)* **3. Verify your password and security settings.** *(See Security menu on pages 94-99.)*
Keyboard or Mouse Problems		
The built-in keyboard does not seem to work.	**1. The notebook has gone into Suspend mode.** **2. Your application has locked out your keyboard.**	**1. Push the Suspend/Resume button.** **2. Try to use the touchpad pointing device to access the Start menu and then the ShutDown menu and restart the System. If this fails then turn your notebook off, wait 10 seconds or more,and then turn it on using the power switch.**

Symptom	Possible Cause	Possible Solution
You have installed an external keyboard or mouse,and it does not seem to work.	**1. Your external device is not properly installed.** **2. Your operating system software is not setup with the correct software driver for that device.** **3. Your mouse or keyboard is connected to the wrong PS/2 port of the Mobile LAN Dock.**	**1. Re-install your device.** *(See Mouse or Keyboard on page 133.)* **2. Check your device and operating system documentation and activate the proper driver.** **3. Plug the mouse into the PS/2 Mouse port and the external keyboard or numeric keypad into the PS/2 Keyboard port.**
You have connected an external keyboard or a mouse and it seems to be locking up the system.	**1. Your operating system software is not setup with the correct software driver for that device.** **2. Your system has crashed.**	**1. Check your device and operating system documentation and activate the proper driver.** **2. Restart your system by shutting down and/or turning off the power, waiting at least 10 seconds and then turning the power on again.**
Memory Problems		
Your power on screen or Main menu of the BIOS setup utility information does not show the correct amount of installed memory.	**1. Your memory upgrade module is not properly installed.** **2. You have a memory failure.**	**1. Remove and re-install your memory upgrade module.** *(See Memory Upgrade Module on pages 134-136.)* **2. Make sure display of error messages is enabled** *(see Boot Options Submenu on page 109)***, and check for Power On Self Test (POST) messages.** *(See pages 158-160 for possible messages and their meanings.)*

Symptom	Possible Cause	Possible Solution
Modem Problems		
Messages about modem operation.	**1. Messages about modem operation are generated by whichever modem application is in use.**	**1. See your application software documentation for additional information.**
Parallel, Serial,and USB Device Problems		
You have installed a parallel-port device,a serial-port device or a USB device. Your notebook does not recognize the device, or the device does not seem to work properly.	**1. The device is not properly installed.**	**1. Remove and re-install the device.** *(See Parallel Port Devices on page 132,Serial Port on Devices on page 132,or USB Devices on page 133.)*
	2. The device may have been installed with an application running and your notebook doesn't know it's there.	**2. Close your application and restart your notebook.**
	3. Your software may not have the correct software driver active.	**3. See your software documentation and activate the correct driver.**
	4. You may have the wrong I/O address selected for your device.	**4. See your device documentation and software documentation to determine the required I/O address.**
	5. Your device and another device are assigned the same I/O address.	**5. Check all I/O addresses in the BIOS setup utility and your other installed hardware and software and make sure there are no duplications.**

CAUTION

USB technology is not supported and does not work with Windows NT 4.0.

Symptom	Possible Cause	Possible Solution
PC Card Problems		
A card inserted in the PC Card slot does not work or is locking up the system.	**1. The card is not properly installed.** **2. The card may have been installed with an application running and your notebook doesn't know it's there.** **3. Your software may not have the correct software driver active.** **4. You may have the wrong I/O address selected for your PC Card device.** **5. Your PC Card device and another device are assigned the same I/O address.**	**1. Remove and re-install the card.** *(See PC Cards on pages 131-132.)* **2. Close your application and restart your notebook.** **3. See your software documentation and activate the correct driver.** **4. See your PC Card documentation to determine the required I/O address.** **5. Check all I/O addresses in the BIOS setup utility and your other installed hardware and make sure there are no duplications.**
Power Failures		
You turn on your notebook and nothing seems to happen.	**1. The internal battery is completely discharged, and there is no power adapter (AC or auto/ airline) installed.**	**1. When all the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode.** *(See page* **38.) Check the Status Indicator panel to determine the presence and condition of the batteries.** *(See page 26.)* **Install a power adapter if all batteries are dead or unavailable.** *(See page 12.)*

Symptom	Possible Cause	Possible Solution
	2. The internal battery is completely discharged and the Power adapter (AC or auto/airline) has no power from the AC outlet, airplane seat jack, or the car's cigarette lighter.	**2. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode.** *(See page* **38.) Check the Status Indicator panel to determine the presence and condition of the batteries and adapter.** *(See Figures 3-1 and 3-2 on pages 26 and 28.)* **Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet,if you are using an auto/airline adapter in a car make sure the ignition switch is in the On or Accessories position.**
	3. The internal battery is completely discharged and the Power adapter (AC or auto/airline) is faulty.	**3. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode.** *(See page 38.)* **Verify the cause using the Status Indicator panel to determine the presence and condition of the batteries and adapter.** *(See Figures 3-1 and 3-2 on pages 26-28.)* **Try a different Power adapter or install a charged optional second battery.**

Symptom	Possible Cause	Possible Solution
	4. Power switch is already in the On position.	**4. Try the Suspend/Resume button. If that doesn't work,slide your power switch firmly to the front,pause 10 seconds or more and then firmly to the rear. If you shut down your notebook from Windows 95, you are really in a pseudo-off state,there is some power on and you can restart with the Suspend/Resume button.** *(See Power Off on pages 21-22.)*
	5. The internal battery is faulty and there is no Power adapter (AC or auto/airline) installed.	**5. Use the Status Indicator panel to verify the presence and condition of the batteries.** *(See Figure 3-1 on page 26.)* **If a battery is indicating a short, remove that battery and operate from another power source or replace that battery.**
	6. The battery or batteries are low.	**6. If the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode.** *(See page 38.)* **Check the Status Indicator panel to determine the presence and condition of the batteries.** *(See Figure 3-1 on page 26.)* **Use a Power adapter to operate until a battery is charged or install a charged battery.**

Symptom	Possible Cause	Possible Solution
Your notebook turns off all by itself.	**1. The power management parameters are set for auto timeouts which are too short for your operating needs.**	**1. Use the keyboard or pointer and if that does not restore operation,push the Suspend/ Resume button. Check the Power Management settings or close your applications and go to the BIOS Setup Utility Power Savings menu and adjust the timeout values to better suit your operation needs.** *(See the PowerPanel on pages 52-55 and Power Menu on pages 100-107.)*
	2. You are operating on battery only and have ignored a low battery alarm until the batteries are all at the dead battery state and your machine has gone into Dead Battery Suspend mode.	**2. Install a Power adapter and then push the Suspend/Resume button.** *(See Low Battery State on page 38.)*
	3. You have a battery failure.	**3. Verify the condition of the batteries using the Status Indicator panel** *(Figure 3-1 on page 26)***, and replace or remove any that are shorted.**
	4. Your Power adapter has failed or lost its power source.	**4. Make sure the adapter is plugged in outlet has power.**

Symptom	Possible Cause	Possible Solution
Your notebook won't work on battery alone.	**1. The installed batteries are dead.**	**1. When the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode.** *(See page 38.)* **Replace the battery with a charged one or install a Power adapter.**
	2. The batteries are improperly installed.	**2. Verify that the batteries are properly connected by re-installing them.** *(See Internal Battery on page 136.)*
	3. Your installed batteries are faulty.	**3. Verify the condition of the batteries using the Status Indicator panel,** *(Figure 3-1 on page 26)***, and replace or remove any that are shorted.**
The batteries seem to discharge too quickly.	**1. You are running an application which uses a great deal of power because of frequent hard drive access or CD-ROM access,use of a modem PC Card or of a LAN PC Card.**	**1. Use both the internal battery and secondary battery and/or use a Power adapter for this application when at all possible.**
	2. The power savings features may be disabled.	**2. Check the PowerPanel and/or setup utility settings in the Power Savings menu** *(see pages 52-55 and 100-107)***, and adjust according to your operating needs.**

Symptom	Possible Cause	Possible Solution
	3. The brightness is turned all the way up.	**3. Turn down the brightness adjustment. The higher the brightness the more power your display uses.**
	4. The batteries are very old.	**4. Replace the batteries.**
	5. The batteries have been exposed to high temperatures.	**5. Replace the batteries.**
	6. The batteries are too hot or too cold. *(See Batteries on page 35.)*	**6. Restore the notebook to normal operating temperature. (The Charging icon on the Status Indicator panel will flash when the battery is outside its operating range.)**
Shutdown and Startup Problems		
The Suspend/Resume button does not work.	**1. The Suspend/Resume button is disabled from the Advanced submenu of the Power Savings menu of the setup utility.**	**1. Enable the button from the setup utility.** *(See page 107.)*
	2. You did not hold the button in long enough.	**2. Hold the button longer. This may need to be a very long time if your application is preventing the CPU from checking for button pushes.**
	3. There may be a conflict with the application software.	**3. Close all applications, and try the button again.**

Symptom	Possible Cause	Possible Solution
The system powers up, and displays the power on information, but fails to load operating system.	**1. The boot sequence settings of the setup utility are not compatible with your configuration.**	**1. Set the operating source by pressing the Esc key while the Fujitsu logo is on screen or use the F2 key and enter the setup utility and adjust the source settings from the Boot menu.** *(See Boot Menu on page 108.)*
	2. You have a secured system requiring a password to load your operating system.	**2. Make sure you have the right password.Enter the setup utility and verify the Security settings and modify them as appropriate.** *(See Security Menu on pages 94-99.)*
	3. Internal hard drive was not detected.	**3. Use the BIOS setup utility Main menu, Primary Adapter submenu to try to auto detect the internal hard drive.**
An error message is displayed on the screen during the notebook turn on (boot) sequence.	**1. Power On Self Test (POST) has detected a problem.**	**1. See the Power On Self Test (POST) Messages** *(pages 158-160)* **to determine the meaning and severity of the problem. Not all messages are errors; some are simply status indicators.**
Your notebook appears to change setup parameters when you start it.	**1. BIOS setup changes were not saved when you made them and exited the BIOS setup utility thus returning to previous settings.**	**1. Make sure you select Save Changes And Exit. when exiting the BIOS setup utility.**
	2. The BIOS CMOS hold-up battery has failed.	**2. Contact your support representative for repairs. This is not a user serviceable part but has a normal life of 3 to 5 years.**

Symptom	Possible Cause	Possible Solution
Video Problems		
The built-in display is blank when you turn on your notebook.	**1. Something is pushing on the Closed Cover switch.** *(See Figure 1-6 on page 5.)*	**1. Clear the Closed Cover switch.**
	2. The notebook is set for an external monitor only.	**2. Pressing F10 while holding down the Fn key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are built-in display only, external monitor only, both built-in display and external monitor.**
	3. The angle of the display and the brightness settings are not adequate for your lighting conditions.	**3. Move the display and the brightness control until you have adequate visibility.**
	4. The power management timeouts may be set for very short intervals and you failed to notice the display come on and go off again.	**4. Press any key or move the pointer, if this doesn't work press the Suspend/Resume button. (The display may be shut off by Standby mode, Auto Suspend, or Video Timeout.)**
	5. The notebook turned on with a series of beeps.	**5. Power On Self Test (POST) has detected a failure which does not allow the display to operate. Contact your support representative.**

Symptom	Possible Cause	Possible Solution
The display goes blank by itself after you have been using it.	**1. The notebook has gone into Video timeout, Standby mode, Suspend mode or Save-to-Disk mode because you have not used it for a period of time.**	**1. Use the keyboard or pointer and if that does not restore operation,push the Suspend/ Resume button. You may want to change your PowerPanel settings** *(pages 52-55)* **or close your application and go to the setup utility Power Savings menu** *(pages 100-107)* **and adjust the timeout values to better suit your needs.**
	2. Something is pushing on the Closed Cover switch. *(See Figure 1-6 on page 5.)*	**2. Clear the Closed Cover switch.**
The Built-in Display does not close.	**1. A foreign object, such as a paper clip, is stuck between the display and the keyboard.**	**1. Remove all foreign objects from the keyboard.**
The Built-in Display has bright or dark spots.	**1. If the spots are very tiny and few in number, this is normal for a large LCD display.**	**1. This is normal; do nothing.**
	2. If the spots are numerous or large enough to interfere with your operation needs.	**2. Display is faulty; contact your support representative.**
The application display uses only a portion of your screen and is surrounded by a dark band.	**1. You are running an application that does not support 1024 x 768 pixel resolution display and display compensation is displayed.**	**1. Display compression gives a clearer but smaller display for applications that do not support 1024 x 768 pixel resolution. You can fill the screen but have less resolution by changing your display compression setting.** *(See Video Features Submenu of the Advanced Menu on pages 86-87.)*

Symptom	Possible Cause	Possible Solution
You have connected an external monitor and it does not come on.	**1. Your BIOS setup is not set to enable your external monitor.**	**1. Try toggling the video destination by pressing Fn and F10 together or check your BIOS setup and enable your external monitor.** *(See the Video Features Submenu of the Advanced Menu on pages 86-87.)*
	2. Your external monitor is not properly installed.	**2. Reinstall your device.** *(See External Monitor on page 134.)*
	3. Your operating system software is not setup with the correct software driver for that device.	**3. Check your device and operating system documentation and activate the proper driver.**
	4. Your external monitor is not compatible with your notebook.	**4. See your monitor documentation and the External Monitor Support portions of Appendix A on page 172.**
Miscellaneous Problems		
An error message is displayed on the screen during the operation of an application.	**1. Application software often has its own set of error message displays.**	**1. See your application manual and help displays screens for more information. Not all messages are errors;some may simply be status.**

POWER ON SELF TEST MESSAGES

The following is an alphabetic list of error-and-status messages which Phoenix BIOS and/or your operating system can generate and an explanation of each message.Error messages are marked with an *. Comments in *italic type* **are suggestions of possible actions for you to consider or risks resulting from ignoring the message. The most common errors are marked with a #. If an error message is displayed that is not in this list, write it down and check your operating system documentation both on screen and in the manual. If you can find no reference to the message and its meaning is not clear, contact your support representative for assistance.**

nnnn Cache SRAM Passed – **Where nnnn is the amount of system cache in kilobytes successfully tested by the Power On Self Test (POST). (This can only appear if you have an SRAM PC Card installed.)**

*Diskette drive A error or Diskette drive B error – **Drive A: or B: is present but fails the BIOS Power On Self Test (POST) diskette tests.** *Check to see that the drive is defined with the proper diskette type in the Utility Setup, (see page 63,) and that the diskette drive is installed correctly, (see pages 124-127). If the disk drive is properly defined and installed avoid using it and contact your support representative.*

*Extended RAM Failed at offset:nnnn – **Extended memory not working or not configured properly.** *If you have an installed a memory upgrade module verify that the module is properly installed. If it is properly installed you may want to check your Windows Setup so it is not trying to use unavailable memory until you can contact your support representative.*

nnnn Extended RAM Passed – **Where nnnn is the amount of memory in kilobytes successfully tested.**

*Failing Bits: nnnn – **The hex number nnnn is a map of the bits at the memory address (in System, Extended, or Shadow memory) which failed the memory test.Each 1 (one) in the map indicates a failed bit.** *This is a serious fault which might cause you to lose data if you continue. Contact your support representative.*

*Fixed Disk x Failure or Fixed Disk Controller Failure – **(where x = 1-4) Fixed disk is not working or not configured properly. This may mean that the hard drive type identified in your Setup Utility does not agree with the type detected by the Power On Self Test (POST).** *Run the Setup Utility to check for the hard disk type settings and correct them if necessary. If the settings are OK and the message appears when you restart the system there may be a serious fault which might cause you to lose data if you continue. Contact your support representative.*

*Incorrect Drive A type – run SETUP – **Type of floppy drive A: not correctly identified in Setup. This means that the floppy disk drive type identified in your Setup Utility does not agree with the type detected by the Power On Self Test (POST).** *Run the Setup Utility to correct the inconsistency.*

*Incorrect Drive B type - run SETUP – **Type of floppy drive B: not correctly identified in Setup. This means that the floppy disk drive type identified in your Setup Utility does not agree with the type detected by the Power On Self Test (POST).** *Run the Setup Utility to correct the inconsistency.*

*Invalid NVRAM media type – **Problem with NVRAM access.** *In the unlikely case that you see this message you may have some display problems. You can continue operating but should contact your support representative for more information.*

*Keyboard controller error –– **The keyboard controller failed test.** *You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.*

*Keyboard error – **Keyboard not working.** *You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.*

*Keyboard error nn – **BIOS discovered a stuck key and displays the scan code for the stuck key.** *You may have to replace your keyboard but may be able to use an external keyboard until then. Contact your support representative.*

*Monitor type does not match CMOS – Run SETUP – **Monitor type not correctly identified in Setup.** *This error probably means your BIOS is corrupted, run the Setup Utility and set all settings to the default conditions. If you still get this error, contact your support representative.*

#*Operating system not found – **Operating system cannot be located on either drive A: or drive C:** *Enter the Setup Utility and see if fixed disk and drive A: are properly identified and that the boot sequence is set correctly. Unless you have changed your installation greatly the operating system should be on drive C:. If the Setup Utility is correctly set your hard drive is probably corrupted and your system may have to be re-installed from your back up media.*

*Parity Check 1 nnnn – **Parity error found in the system bus.BIOS attempts to locate the address and display it on the screen. If it cannot locate the address,it displays ???? .** *This is a potentially data destroying failure. Contact your support representative.*

*Parity Check 2 nnnn – **Parity error found in the I/O bus.BIOS attempts to locate the address and display it on the screen. If it cannot locate the address,it displays ???? .** *This is a potentially data destroying failure. Contact your support representative.*

#*Press <F1> to resume,<F2> to SETUP – **is displayed after any recoverable error message.** *Press the* **F1** *key to continue the boot process or the* **F2** *key to enter Setup and change any settings.*

#Press <F2> to enter SETUP – **message is displayed during Power On Self Test (POST). The message can be turned off by the Setup Utility Boot Options Submenu,** *(see page 108)***, but the F2 key will still perform the same function.**

#*Previous boot incomplete – Default configuration used – **Previous Power On Self Test (POST) did not complete successfully. Power On Self Test (POST) loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected,the next boot will likely fail also.** *If using the default settings does not allow you to complete a successful boot sequence you should turn off the power with the Power Switch and contact your support representative.*

*Real time clock error – **Real-time clock fails BIOS test.** *May require board repair. Contact your support representative.*

*Shadow RAM Failed at offset:nnnn – **Shadow RAM failed at offset nnnn of the 64k block at which the error was detected.** *You are risking data corruption if you continue. Contact your support representative.*

nnnn Shadow RAM Passed – **Where nnnn is the amount of shadow RAM in kilobytes successfully tested.**

*System battery is dead – Replace and run SETUP – **The BIOS CMOS RAM memory hold up battery is dead. This is part of your BIOS and is a board mounted battery which requires a support representative to change.** *You can continue operating but you will have to use Setup Utility default values or reconfigure your Setup Utility every time you turn off your notebook. This battery has an expected life of 2 to 3 years.*

System BIOS shadowed – **System BIOS copied to shadow RAM.**

*System CMOS checksum bad – run SETUP – **BIOS CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in BIOS memory.** *Run Setup and reconfigure the system.*

*System RAM Failed at offset:nnnn – **System memory failed at offset nnnn of in the 64k block at which the error was detected.** *This means that there is a fault in your built-in memory. If you continue to operate you risk corrupting your data. Contact your support representative for repairs.*

nnnn System RAM Passed – **Where nnnn is the amount of system memory in kilobytes successfully tested.**

*System timer error – **The timer test failed. The main clock that operates the computer is faulty.** *Requires repair of system board. Contact your support representative for repairs.*

UMB upper limit segment address: nnnn – **Displays the address of the upper limit of Upper Memory Blocks,indicating released segments of the BIOS memory which may be reclaimed by a virtual memory manager.**

Video BIOS shadowed Video – **BIOS successfully copied to shadow RAM.**

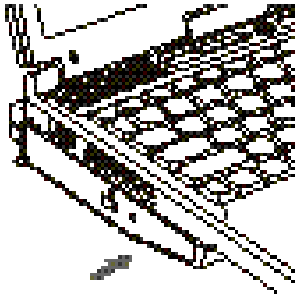

Figure 6-1 Emergency CD-ROM Tray Release

EMERGENCY CD-ROM DRIVE TRAY RELEASE

If for some reason the eject button fails, you can open the CD-ROM tray with a paper clip or similar tool inserted into the eject hole in the far right side of the front of the tray. Straighten one side of a paper clip and push it gently into the hole. The tray will pop out a short distance

MODEM SETUP AND COMMANDS

The operating system and application software that is factory installed detects the modem characteristics and provides the necessary command strings to operate the modem. The internal modem operation is controlled by generic AT commands from the operating system and application software. The standard long form result codes may, in some cases, be displayed on your screen to keep you informed of the actions of your modem. The operating system and application software may suppress display of the result codes. Examples of result codes are:

OK

NO CARRIER

NO DIALTONE

CONNECT 56000
(Connection complete at 56,000 bps.)

ERROR

FAX

RING (This means an incoming call.)

BUSY

NO ANSWER

When using the internal modem with applications which are not factory installed see the application documentation.

RECOVERING YOUR WINDOWS 95/ WINDOWS 98 SYSTEM

Included with your notebook (in the Accessories box) is an Emergency Recovery CD-ROM with the following content:

- **A backup copy of the software originally installed by Fujitsu on your new Fujitsu LifeBook (can only be used on the listed Fujitsu LifeBook model(s))**
- **Sets of device drivers and utilities (in specific directories) that are unique to your notebook configuration for use as documented below**
- **"Read-me" file(s) that provide additional use information for items on this CD-ROM.**

Note: If you have access to the internet, visit the Fujitsu PC Corporation Web Site (http://www.8fujitsu.com) to check for the most current information and hints on how to perform recovery and system updates.

Restoring Your Pre-installed Software from CD-ROM

The Recovery CD-Rom enables restoration of your notebook disk drive contents as they were originally shipped from the factory. Most often this is necessary if files or software programs (only those files/programs that came pre-installed) become corrupted or accidentally erased.

You have two options available when performing recovery:

1. Recover Hard Drive without Format

This choice replaces all the original factory installed files and program structures without eliminating your data files. **You will have to re-install any software that was not included with the computer when you bought it (but your data will be intact as long as the installation of the additional programs is performed in the same manner).**

2. Format and Recover Hard Drive

WARNING: **This choice removes all the information on the hard disk. If you choose this option, you will lose any software you have installed and any other files you created since you setup your computer. You will have to re-install any software that was not included with the computer when you bought it.**

POINT

It is recommended that you "back-up" all data files prior to performing either of the recovery options.

Device Drivers, Utilities and "Read-Me" File(s)

The Recovery CD also includes a section for providing device driver files/directories and specific LifeBook model utilities that give you additional flexibility and functionality for using your Fujitsu notebook.

CAUTION

User data and user installed software CAN NOT be recovered from the Recovery CD.

This section of the CDis only available if your notebook is already functioning from either your hard drive boot/operating system or as a result of using a bootable floppy disk that is configured to recognized the CD-ROM drive.

POINT

Do not boot your notebook from the CD-ROM drive as is done for restoring your pre-installed software.

POINT

Look for and open files with the extensions ".DOC" and ".TXT".

POINT

Make certain you have your Operating System Product ID# available (from the Certificate of Authenticity) prior to performing recovery. Once the process is complete and you re-start your notebook, you will be required to perform all the setup steps as you did when the computer was first bought. *(See the section "Starting Your Notebook For the First Time.")*

Please locate and read any of the "Read-Me" files on the CD. These files will provide information that pertains specifically to the additional files and utilities that are provided on the Recovery CD for your particular LifeBook model.

POINT

To use this portion of the CD-ROM, your notebook must BOOT (upon power up of full system reset/restart) from the CD-ROM drive. (See section four.)

To Run the Emergency Recovery Program

1. **Insert the Recovery CD in the CD-ROM drive.**
2. **If your notebook is running when you insert the CD, exit your operating system and power down the notebook.**
3. **Start (power up) your notebook.**
4. **At this point, you must either change your BIOS setup configuration (F2 key) to have the computer boot from the CD-ROM "first" (if you have not previously done so), or use the Esc key during the boot-up sequence and select the CD-ROM from the menu which will appear. For more information and detailed instructions on changing the BIOS setup, refer to Section Four of this manual.**
5. **If correctly configured to boot from the Recovery CD-ROM, you will notice your system will run a full virus scan of the hard drive and then reach the Recovery CD Welcome screen. If this is not what is displayed, check to see that the Recovery CD is installed in the CD-ROM drive and repeat the previous steps (starting with 2).**

Note: If you receive a message "This program may not be used on your computer" you are using the wrong Recovery CD for the model of notebook.

6. **Read the information displayed on the Welcome screen, then Click OK.**
7. **Select one of the two icons displayed in the Recovery CD menu and follow the instructions that follow.**
8. **When recovery is complete, remove the Recovery CD, replace it in its sleeve and store it in a safe location (with your Operating System Manual/Certificate of Authenticity).**
9. **Restart your notebook.**
10. **Reset your boot device priority in the BIOS setup as desired.**

POINT

As long as there is no bootable disk in the CD-ROM drive or floppy disk drive, your notebook will boot from the hard drive regardless of the BIOS "Boot Device Priority" setting.

Your notebook now has all of the software installed that was included when you received it from the factory. You must now load any programs which you purchased and installed after you got you notebook. If you chose the Format and Recover option, you should now restore your data files. If you performed Recovery without Format, your data files will still exist (within their original directory structures).

RECOVERING YOUR WINDOWS NT 4.0 SYSTEM

Included with your notebook (in the Accessories box) is an Emergency Recovery CD-ROM with the following content:

- **A backup copy of the software originally installed on your new Fujitsu LifeBook (can only be used on the listed LifeBook models).**
- **Sets of device drivers and utilities (in specific directories) that are unique to your notebook configuration for use as documented below.**
- **Read-me files that provide additional use information for items on this CD-ROM.**

If you have access to the internet, visit the Fujitsu PC Corporation Web Site at www.8fujitsu.com to check for the most current information and hints on how to perform recovery and system updates.

Restoring Your Pre-installed Software from CD-ROM

The Emergency Recovery CD-ROM enables restoration of your notebook disk drive contents as they were originally shipped from the factory. Most often this is necessary if files or software programs (only those files/programs that came pre-installed) become corrupt or accidentally erased.

POINT

It is recommended that you back-up all data files prior to performing recovery.

POINT

Make certain you have your Operating System Product ID# available (from the Certificate of Authenticity) prior to performing recovery. Once the process is complete and you re-start your notebook, you will be required to perform all the setup steps as you did when the computer was first bought. *(See the section "Starting Your Notebook For the First Time.")*

CAUTION

User data and user installed software CAN NOT be recovered from the Emergency Recovery CD.

To Run the Emergency Recovery Program

To use this portion of the CD-ROM, your notebook must boot (upon power up or full system reset/restart) from the CD-ROM drive. *(See page 58.)*

1. **Insert the Emergency Recovery CD in the CD-ROM drive.**
2. **If your notebook is running when you insert the CD, exit your operating system and power down the notebook.**
3. **Start (power up) your notebook.**
4. **At this point, you must change your BIOS setup configuration (F2 key) to have the computer boot from the CD-ROM "first".** *(For more information on changing the BIOS setup, see page 58.)*
5. **If correctly configured to boot from the Recovery CD-ROM, your system will display the Emergency Recovery welcome screen. If this is not what is displayed, check to see that the Recovery CD is inserted in the CD-ROM drive and repeat the previous steps,starting with 2.**

   If you received a message `This program may not be used on your computer,` **you are using the wrong Recovery CD for your model of notebook.**
6. **Read the information displayed on the welcome screen, then Click OK.**
7. **Read the information on the system diagnostic window that appears next and click OK.**
8. **Read the information on the warning window that appears next and click OK.**
9. **Your system will reboot itself. Do not remove the Recovery CD. The welcome screen will appear again; click OK.**
10. **Double-click the Format and Recover Hard Drive icon.**
11. **The recovery program will prompt you to choose to format both partitions on the hard drive. Click Yes in each instance to continue.**
12. **Read the information displayed and click OK. Recovery will begin and the system will display progress messages.**
13. **Your system will reboot itself. Do not remove the Recovery CD.**
14. **When a message saying recovery is complete appears, remove the Recovery CD, replace it in its sleeve and store in a safe location.**

CAUTION

Failure to remove the Recovery CD before restarting the notebook will result in a startup from the Recovery CD.

15. Restart your notebook.

16. Reset your boot device priority in the BIOS setup as desired.

Your notebook now has all of the software installed that was included when you received it from the factory. You must now load any programs which you purchased and installed after you got your notebook.

POINT

As long as there is no bootable disk in the CD-ROM drive or the floppy disk drive, your notebook will boot from the hard drive regardless of the BIOS Boot Device Priority setting.

Device Drivers, Utilities and Read-Me Files

The Emergency Recovery CD also includes a section for providing device driver files/directories and specific Lifebook model utilities that give you additional flexibility and functionality for using your Fujitsu notebook.

This section of the CD is only available if your notebook is already functioning from either your hard drive boot/operating system or as a result of using a bootable floppy disk that is configured to recognize the CD-ROM drive.

Please locate and read any of the Read-Me files that are included on the CD. These files will provide information that pertains specifically to the additional files and utilities that are provided on the Recovery CD for your particular Lifebook model.

POINT

Look for and open files with the extensions .DOC and .TXT

Care and Maintenance

SECTION SEVEN

CARE AND MAINTENANCE

If you use your LifeBook from Fujitsu carefully, you will increase its life and reliability. This section provides some tips for looking after the notebook and the battery.

CARING FOR YOUR NOTEBOOK

*** The LifeBook is a durable but sensitive electronic device. Treat it with respect and care.**

- **Make a habit of transporting it in a suitable carrying case.**
- **Keep it away from food and beverages.**
- **If you accidentally spill liquid on your notebook:**
  1. **Turn it off.**
  2. **Position it so that the liquid can run out.**
  3. **Let it dry out for 24 hours, or longer if needed.**
  4. **If your notebook will not boot after it has dried out,call your support representative.**
- **Avoid exposure to water, sand, dust,and other environmental hazards.**
- **Do not expose your notebook to direct sunlight for long periods of time as temperatures above 140° F (60° C) may damage your notebook.**
- **Keep the covers closed on the connectors and slots when they are not in use.**
- **Do not put heavy or sharp objects on the computer.**
- **If you are carrying your notebook in a briefcase, or any other carrying case,make sure that there are no objects in the case pressing on the lid of your notebook.**
- **Do not drop your notebook.**
- **Clean your notebook with a damp, lint-free cloth. Do not use abrasives or solvents.**
- **Use a soft cloth to remove dust from the screen.**

INCREASING BATTERY LIFE

To increase battery life:

1. **Power your notebook through the AC or optional auto/airline adapter whenever possible.**
2. **If your notebook is running on battery power all day, connect it to the AC adapter overnight to recharge the battery.**
3. **Keep brightness to the lowest level comfortable.**
4. **Keep the volume level as low as possible for comfortable operation.**
5. **Set the power management for the maximum Power Savings profile of the PowerPanel settings or set an even longer life combination with the BIOS setup utility.** *(See pages 43-47 and 87-91 for instruction on these settings.)*
6. **Put your notebook in Suspend mode when it is turned on and you are not actually using it.**
7. **Limit your CD-ROM access.**
8. **Disable the Windows 95 CD automatic insertion function.** *(See page 28.)*
9. **Always use fully charged batteries.**

CARING FOR YOUR BATTERIES

If your notebook is to be stored for a month or longer, turn the machine off and remove all Lithium ion batteries.Store your notebook and batteries separately in a cool,dry location. If you store your notebook with a battery installed, the battery will discharge,and battery life will be reduced. In addition,a faulty battery might damage your notebook.

Specifications and Glossary

APPENDIX A SPECIFICATIONS

Appendix A provides the hardware and environmental specifications and the model and part numbers for your LifeBook L Series and its peripherals.

WARRANTY

Your notebook is backed by a three year * International Limited Warranty and includes toll-free technical support; call 1-800-8FUJITSU (1-800-838-5487). Check the service kit that came with your notebook for warranty terms and conditions.

LIFEBOOK L SERIES SPECIFICATIONS

Microprocessor

L440 and L440-B

Intel Pentium II 266MHz,PCI bus and CardBus architectures.

Memory

System Memory (on-board)

32 MB standard /160 MB total maximum, (1 upgrade slot.)

L2 Cache Memory

512KB.

Expansion Memory Options

16MB, 32MB, 64MB and 128MB SDRAM Modules extend system memory up to 160MB maximum; installable in a single DIMM (dual-in-line memory module) socket in a compartment in the bottom of the notebook.

BIOS Memory

512KB Flash ROM.
256 Bytes CMOS-RAM with back-up battery.

Video RAM

2MB EDO RAM.

Display

Built-in color flat-panel TFT active matrix LCD display with simultaneous display capability.

Recommended Video Color and Resolution

Diagonal dimension: 13.3"

Internal

1024 x 768 pixel resolution/64k colors.
800 x 600 pixel resolution/256k colors (select 16M colors on Window Display setting).

External

1024 x 768 pixel resolution, 64k colors.
800 x 600 pixel resolution, 16M colors.
Simultaneous Video = Yes
1024 x 768 pixels/64k colors.
SVGA,and VGA compatible.

Mass Storage Device

Floppy Disk Drive

One 3.5" floppy disk drive which accomodates a 1.44MB or a 720KB floppy disk,
External FDD with L440 configuration.
Modular FDD for Detachable Bay with L440-B configuration.
Fujitsu Model FPCFDD06

SuperDisk 120

Optional modular SuperDisk 120 Super floppy disk drive for Detachable Bay which accomodates 120MB Super floppy disks and standard 3.5" floppy disks.

***Service and warranty turnaround time may vary by country and product.**

Hard Drive

One factory installed 4.0GB fixed hard drive unit.

CD-ROM Drive

Included modular, 20x maximum,5.25" CD-ROM drive with L440 Detachable Bay configuration.

DVD Drive

Optional module, DVD Media 2x max,CD Media 20x max, 5.25" DVD-ROM drive,

Audio

SoundBlaster Pro-compatible 16-bit stereo PCM/FM sound chip.
Spatializer 3D-Stereo multiple speaker effect support.
Stereo headphone jack, 1 Vrms, or less, minimum impedance 32 Ohms.
Stereo line in jack, 880 mVrms or less, minimum impedance 10K Ohms.
Mono microphone jack,125 mVp-p or less, minimum impedance 10K Ohms.
Two built-in speakers,28 mm diameter (Stereo).
One built-in monaural microphone.

Integrated Pointing Device

Touchpad pointing device

Communication Options

Internal V.90 standard 56K fax/modem (ITU V.90,56K data,14.4K fax.)
(See page 3 for caution on modem.)
IrDA 1.1 compatible fast infrared port (4 Mbps).

Video

MPEG-1 video data decompression software.
Zoomed Video support via PC Card Slot 1 in notebook only.
NTSC/PAL TV output jack in optional LAN Dock.

Input/Output Connections

One Type II PC Card slot: PCMCIA Standard 2.1 with CardBus support; Zoomed Video support via Slot 1.
One 6-pin mini DIN PS/2 compatible connector, for external keyboard, external mouse or external numeric keypad.
One 25-pin D-SUB two-way Centronics type connector for parallel input/output devices; Bi-directional, output only or ECP.
One 220-pin connector for docking devices.
One 15-pin D-SUB connector for VGA external monitor (*see Display specifications***).**
One 9-pin D-SUB connector for RS-232C serial input/output devices.
One connector for USB (Universal Serial Bus) input/output devices.
One 25-pin special connector for external floppy disk drive connection.
One modular RJ-11 communications connector.
One stereo headphone jack. (*See Audio specifications.***)**
One mono microphone jack. (*See Audio specifications.***)**
One stereo line in jack. (*See Audio specifications.***)**

Keyboards

Built-in keyboard with all functions of 101 key PS/2 compatible keyboards.

- **Total number of keys: 86.**
- **Function keys: 12, F1 through F12.**
- **Feature extension key: Fn.**
- **Windows keys: 3,two Start keys and one Application key.**
- **Key pitch:19 mm.**
- **Key stroke: 3 mm.**
- **Built-in Glidepoint/Touchpad pointing device with left and right buttons.**
- **Built-in palmrest.**

External Keyboard Support
PS/2 compatible.

External Numeric Keypad Support
PS/2 compatible.

External Mouse Support
PS/2 compatible.

Management Standard

DMI 2.0/WFM 1.1a enabled.

Power

Batteries
One modular Lithium ion battery, Fujitsu Model FPCBP15. Rechargeable,10.8V, 2600 mAh. Operating time of up to 3 hours. Rapid charge (notebook off or in suspend mode) in about three (3) hours. Standard charge (normal use with limited CD and hard drive access) in about nine (9) hours.Optional 2nd Battery – (same as primary), for use in Detachable Bay or LAN Dock.

CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery conditioning, and other customer preferences. CD-ROM or hard drive usage may also have a significant impact on battery life.

Optional Dual Battery Configuration
Operating time of up to 6 hours. Rapid charge (notebook off or in Suspend Mode) in about five (5) hours. Standard charge (normal use with limited CD and hard drive access) in about fifteen (15) hours.

AC Adapter
Autosensing 100-240V AC,54W, supplying 16V DC to the Notebook, which includes an AC cable.

Optional Auto/Airline Adapter
Autosensing 12/24V DC,43W supplying 16V DC to the Notebook.

Power Management
Conforms to ACPI (Advanced Configuration and Power Interface) version 1.0.

Dimensions and Weight

Overall Dimensions
Approximately 11.9" x 9.4" x 1.1" (notebook only)
(303 mm x 239 mm x 27.9 mm).
Approximately 11.9" x 9.8" x 2.4" (notebook with Detachable Bay)

Weights
Approximately 6.1 lbs (with Detachable Bay and CD ROM).
Approximately 4.5 lbs (without Detachable Bay and CD-ROM).

Environmental Requirements

Temperature
Operating: 5° to 35° C (41° to 95° F).
Non-operating: –15° to 60° C (5° to 140° F).

Humidity
Operating: 20% to 85%, relative,non-condensing.
Non-operating;8% to 85%, relative, non-condensing.

Altitude
Operating:10,000 feet (3,048 m) maximum.

Electro-Static Discharge (ESD)
9 kV.

Theft Prevention Lock

Lock slot on the right side panel for use with physical restraining security systems. The locking system by Kensington is recommended.

Pre-Installed Software

Windows 95:
Microsoft Windows 95
SoftPEG by CompCore Multimedia Inc.
Audio Rack 32 by ESS Technology, Inc.
Communicator by Netscape
Internet Explorer by Microsoft
McAfee VirusScan by Network Associates, Inc.
PowerPanel by Phoenix Technologies.
LapLink by Traveling Software.
PC-Doctor by Watergate Software, Inc.
INTEL LANDesk Client Manager CD (coupon)

Windows 98:
Microsoft Windows 98
SoftPEG by CompCore Multimedia Inc.
Audio Rack 32 by ESS Technology, Inc.
PMSet 98 by Fujitsu Limited.
Communicator by Netscape
Internet Explorer by Microsoft
McAfee VirusScan by Network Associates, Inc.
LapLink by Traveling Software.
PC-Doctor by Watergate Software, Inc.
INTEL LANDesk Client Manager CD (coupon)

Windows NT 4.0:
Microsoft Windows NT 4.0
Communicator by Netscape
Internet Explorer by Microsoft
McAfee VirusScan by Network Associates, Inc.
Card Executive by Phoenix Technologies.
NoteDock by Phoenix Technologies.
PowerPanel by Phoenix Technologies.
PC-Doctor by Watergate Software, Inc.
INTEL LANDesk Client Manager CD (coupon)

APPROVALS

Emissions

FCC Part 15, FCC Part 68,FTZ.

Safety

UL,C-UL, CSA.

FCC Certification

See statement at the front of this User's Guide.

DOC (Industry Canada) Certification

See statement at the front of this User's Guide.

POPULAR ACCESSORIES

Docking Solution

Mobile LAN Dock, Fujitsu Model FPCDS15.
The Mobile LAN Dock accomodates a second battery and provides connections for:

- **RS-232C Serial device.**
- **Parallel device.**
- **VGA/SVGA/XGA monitor.**
- **Mouse (PS/2).**
- **Keyboard (PS/2).**
- **Slot for one Type II/III PC Card without Zoomed Video support.**
- **10/100 Base-T Ethernet line (RJ-45).**
- **Two USB ports.**
- **NTSC/PAL TV.**
- **DC power jack.**
- **Stereo Line out.**

Detachable Bay, Fujitsu Model FPCDS14
The Detachable Bay has a battery bay for accomodating a second battery.

It allows you to install:

- **CD-ROM drive.**
- **Floppy disk drive.**
- **Weight Saver.**
- **Optional DVD drive.**
- **Optional SuperDisk 120 drive**

Power

Lithium ion Battery, Fujitsu Model FPCBP15

Small AC Adapter, Fujitsu Model FPCAC06

Auto Airline Adapter, Fujitsu Model FPCAA02

Auto Adapter, Fujitsu Model FPCFCBA01

Memory

16MB SDRAM, Fujitsu Model FPCEM05

32MB SDRAM, Fujitsu Model FPCEM06

64MB SDRAM, Fujitsu Model FPCEM07

128MB SDRAM, Fujitsu Model FPCEM13

Storage and Multimedia

External Floppy Disk Drive, Fujitsu Model FPCFDD02

DVD Drive Kit, Fujitsu Model FPCDVD05
Requires Detachable Bay

SuperDisk 120, Fujitsu Model FPCLS03
Requires Detachable Bay

Floppy Disk Drive Cable, Fujitsu Model FPCFDA04

CD-ROM Drive, Fujitsu Model FPCCD10
Requires Detachable Bay

Floppy Disk Drive, Fujitsu Model FPCFDD06
Requires Detachable Bay

APPENDIX B GLOSSARY

AC Adapter
A device which converts the AC voltage from a wall outlet to the DC voltage needed to power your.

ACPI 1.0
Advanced Configuration and Power Interface specification version 1.0. Conforming systems contain BIOS support to allow the Windows 98 operating systems to manage power consumption of system components.

Active-Matrix Display
A type of technology for making flat-panel displays which has a transistor or similar device for every pixel on the screen.

Auto/Airline Adapter
A device which converts the DC voltage from an automobile cigarette lighter or aircraft DC power outlet to the DC voltage needed to power your notebook.

BIOS
Basic Input-Output System.A computer program and set of default parameters stored in ROM which tests and operates your computer when you turn it on until it loads your installed operating system from disk. Information from the BIOS is transferred to the installed operating system to provide it with information on the configuration and status of the hardware.

Bit
An abbreviation for binary digit. A single piece of information which is either a one (1) or a zero (0).

bps
An abbreviation for bits per second. Used to describe data transfer rates.

Boot
To start-up a computer and load its operating system from disk, ROM or other storage media into RAM.

Bus
An electrical circuit which passes data between the CPU and the sub-assemblies inside your computer.

Byte
8 bits of parallel binary information.

Cache Memory
A block of memory built into the microprocessor which is much faster to access than your system RAM and used in specially structured ways to make your overall data handling time faster.

CardBus
A faster, 32-bit version of the PC Card interface which offers performance similar to the 32-bit PCI architecture.

CD-ROM
Compact disc read only memory. This is a form of digital data storage which is read optically with a laser rather than a magnetic head. A typical CD-ROM can contain about 600MB of data and is not subject to heads crashing into the surface and destroying the data when there is a failure nor to wear from reading.

CHS Translation
Cylinder, head and sector translation. Conversion of hard drive access addressing to the cylinder, head and sector form. The terminology is historical left from the days when data was stored on a series of cylindrical drums. The head designates the reading device, similar to the head on a cassette recorder only mounted on a movable arm. Another addressing method is LBA.

CMOS RAM
Complementary metal oxide semiconductor random access memory. This is a technology for manufacturing random access memory which requires very low levels of power to operate.

COM Port
Abbreviation for communication port. This is your serial interface connection.

Command
An instruction which you give your operating system. Example: run a particular application or format a floppy disk.

Configuration
The combination of hardware and software that makes up your system and how it is allocated for use.

CRT
Cathode Ray Tube.A display device which uses a beam of electronic particles striking a luminescent screen. It produces a visual image by varying the position and intensity of the beam.

Data
The information a system stores and processes.

DC
Direct current.A voltage or current that does not fluctuate periodically with time.

Default Value
A preprogrammed value to be used if you fail to set your own.

DIMM
Dual-in-line memory module.

Disk
A spinning platter of magnetic data storage media. If the platter is very stiff it is a hard drive,if it is highly flexible it is a floppy disk, if it is a floppy disk in a hard housing with a shutter it is commonly called a diskette.

Disk Drive
The hardware which spins the disk and has the heads and control circuitry for reading and writing the data on the disk.

Diskette
A floppy disk in a hard housing with a shutter.

DMA
Direct Memory Access.Special circuitry for memory to memory transfers of data which do not require CPU action.

DMI
Desktop Management Interface.A standard that provides PC management applications with a common method of locally or remotely

querying and configuring PC computer systems,hardware and software components, and peripherals.

DOS
Disk Operating System (MS-DOS is a Microsoft Disk Operating System).

Driver
A computer program which converts application and operating system commands to external devices into the exact form required by a specific brand and model of device in order to produce the desired results from that particular equipment.

ESD
Electro-Static Discharge. The sudden discharge of electricity from a static charge which has built-up slowly. Example: the shock you get from a doorknob on a dry day or the sparks you get from brushing hair on a dry day.

Extended Memory
All memory more than the 640KB recognized by MS-DOS as system memory.

FCC
Federal Communication Commission.

Floppy Disk
A spinning platter of magnetic data storage media which is highly flexible.

GB
Gigabyte.

Gigabyte
1,073,741,824 bytes
(2 raised to the thirtieth power).

Hard drive
A spinning platter of magnetic data storage media where the platter is very stiff.

Hexadecimal
A decimal notation for the value of a 4 bit binary number. (0-9,A, B, C, D, E, F) Example: 2F in hexadecimal = 00101111 in binary = 47 in decimal.

I/O
Input/Output. Data entering and leaving your computer in electronic form.

I/O Port
The connector and associated control circuits for data entering and leaving your computer in electronic form.

IDE
Intelligent Drive Electronics.A type of control interface for a hard drive which is inside the hard drive unit.

Impedance
The amount of resistance to the flow of electric current.

Infrared
Light just beyond the red portion of the visible light spectrum which is invisible to humans.

IR
An abbreviation for infrared.

IrDA
Infrared Data Association. An organization which produces standards for communication using infrared as the carrier.

IRQ
Interrupt Request. An acronym for the hardware signal to the CPU that an external event has occurred which needs to be processed.

KB
Kilobyte.

Kilobyte
1,024 bytes (2 raised to the tenth power).

LAN
Local Area Network. An interconnection of computers and peripherals within a single limited geographic location which can pass programs and data amongst themselves.

LBA
Logical Block Addressing. A method of locating data stored on a disk.

LCD
Liquid Crystal Display. A type of display which makes images by controlling the orientation of crystals in a crystalline liquid.

Lithium ion Battery
A type of rechargeable battery which has a high power-time life for its size and is not subject to the memory effect as Nickel Cadmium batteries.

LPT Port
Line Printer Port.A way of referring to parallel interface ports because historically line printers were the first and later the most common device connected to parallel ports.

MB
Megabyte.

Megabyte
1,048,576 bytes
(2 raised to the twentieth power).

Megahertz
1,000,000 cycles per second.

Memory
A repository for data and applications which is readily accessible to your computer CPU.

MHz
Megahertz.

MIDI
Musical Instrument Digital Interface.A standard communication protocol for exchange of information between computers and sound producers such as synthesizers.

Modem
A contraction for MOdulator-DEModulator. The equipment which connects a computer or other data terminal to a communication line.

MMX Technology
MMX technology is an Intel processor enhancement that improves multimedia and communication applications. The Pentium processor with MMX technology boasts three primary architectural design enhancements: 57 powerful new instructions specifically designed to manipulate and process video, audio and graphical data efficiently; Single Instruction Multiple Data (SIMD) enabling one instruction to perform the same function on multiple pieces of data; and more L1 cache for a total of 32KB.

Monaural
A system using one channel to process sound from all sources.

MPU-401
A standard for MIDI interfaces and connectors.

NTSC
National TV Standards Commission. The standard for TV broadcast and reception for the USA.

Operating System
A group of control programs that convert application commands,including driver programs,into the exact form required by a specific brand and model of microprocessor in order to produce the desired results from that particular equipment.

PAL
Phase Alternation by Line. The standard for color television in Western Europe and most of Asia and Africa.

Parallel Port
A connection to another device through which data is transferred as a block of bits simultaneously with a wire for each bit in the block and with other wires only for control of the device not for transfer of data.

Partition
A block of space on a hard drive which is set aside and made to appear to the operating system as if it were a separate disk,and addressed by the operating system accordingly.

PCMCIA
PCMCIA is a trademark of the Personal Computer Memory Card International Association. The Personal Computer Memory Card International Association is an organization that sets standards for add-in cards for personal computers.

Peripheral Device
A piece of equipment which performs a specific function associated with but not integral to a computer. Examples: a printer, a modem, a CD-ROM.

PIO
Parallel Input/Output.

Pitch (keyboard)
The distance between the centers of the letter keys of a keyboard.

Pixel
The smallest element of a display, a dot of color on your display screen. The more pixels per area the clearer your image will appear.

POST
Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your Computer. Status and error messages may be displayed before the operating system is loaded. If the self test detects failures that are so serious that operation can not continue, the operating system will not be loaded.

Program
An integrated set of coded commands to your computers telling your hardware what to do and how and when to do it.

PS/2
An IBM series of personal computers which established a number of standards for connecting external devices such as keyboards and monitors.

RAM
Random Access Memory. A hardware component of your computer that holds binary information (both program and data) as long as it has the proper power applied to it.

RAM Module
A printed circuit card with memory and associated circuitry which allows the user to add additional memory to the computer without special tools.

Reset
The act of reloading the operating system. A reset erases all information stored in RAM.

Restart
See Reset.

Resume
To proceed after interruption. In your Computer this refers to returning to active operation after having been in one of the suspension states.

ROM
Read Only Memory. A form of memory in which information is stored by physically altering the material.Data stored in this way can not be changed by your Computer and does not require power to maintain it.

SCSI
Small Computer Systems Interface (pronounced scuzzy). An American National Standards Institute (ANSI) standard for connecting multiple (up to 7) high speed parallel devices to a computer.

SDRAM
Synchronous Dynamic Random Access Memory.

Serial Port
A connection to another device through which data is transferred one bit at a time on a single wire with any other wires only for control of the device not for transfer of data.

Shadow RAM
A technique of copying data or applications stored in ROM (Read Only Memory) into RAM (Random Access Memory) for access during actual operation. RAM is much faster to access than ROM,however ROM contents are not lost when power is removed.Shadowing allows permanently stored information to be rapidly accessed.

SRAM
Static random access memory. A specific technology of making RAM which does not require periodic data refreshing.

Status Indicator
A display which reports the condition of some portion of your hardware.On your Computer this is an LCD screen just above the keyboard.

Stereo (audio)
A system using two channels to process sound from two different sources.

Stroke (keyboard)
The amount of travel of a key when it is pressed from resting to fully depressed.

Suspend
To make inoperative for a period of time. Your notebook uses various suspension states to reduce power consumption and prolong the charge of your battery.

SVGA
Super VGA.

S-Video
Super Video. A component video system for driving a TV or computer monitor.

System Clock
An oscillator of fixed precise frequency which synchronizes the operation of the system and is counted to provide time of day and date.

TFT
Thin Film Transistor – A technology for flat display panels which uses a thin film matrix of transistors to control each pixel of the display screen individually.

UL
Underwriters Laboratories – An independent organization that tests and certifies the electrical safety of devices.

VGA
Video Graphics Array. A video display standard originally introduced by IBM with the PS/2 series of personal computers.

VRAM
Video Random Access Memory. A memory dedicated to video display data and control.

Write Protect
Prevent alteration of the binary state of all bits in a storage media. Example: all information on a device such as a floppy diskette;a block of space in a storage media such as a partition of a hard drive;a file or directory of floppy diskette or hard drive.

XGA
Extended VGA.

Zip Drive
A read/write removable media disk drive.

Zoomed Video
A PC Card port which allows notebook PCs to deliver full screen broadcast quality video through third party PC Cards, including TV tuners, video capture,and MPEG full-motion video.

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