Note: Before using this information and the product it supports, be sure to read the general information under "Safety Information" on page viii, "Ergonomics Information" on page 42, and "Notices" on page 133.

First Edition (November 1998)

Thank You for Selecting an IBM ThinkPad i Series 1400 Computer

We at IBM have developed this ThinkPad computer to meet both your technical requirements and your high expectations. To help us continue to build products that address your mobile computing needs, please take a moment to complete the ThinkPad Registration.
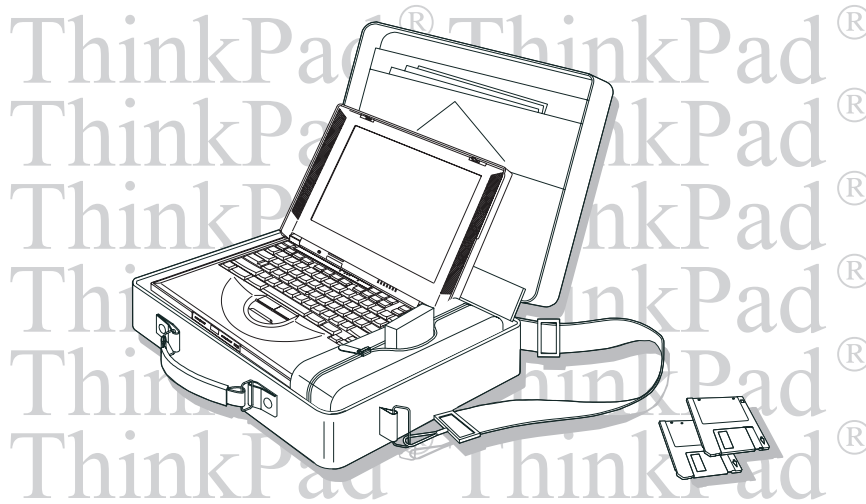
Functional Highlights

All-in-one design with core technology The well-balanced, all-in-one design of the ThinkPad i Series 1400 brings ease-of-use to your computing needs.

High-speed processor The Intel® high-speed processor enables high-speed data processing and provides advanced performance.

Large-capacity hard disk drive The large-capacity hard disk drive can respond to a wide variety of your business demands.

Large color LCD The large TFT (thin-film transistor) display provides clear and brilliant text and graphics.

Nickel metal hydride battery pack The large-capacity battery pack extends the operating time of your computer, further enhancing its portability.

Audio with 3D Stereo Sound Your computer is equipped with internal audio record and playback capabilities including 3D audio from just two speakers. When you enable the 3D stereo feature, sounds will appear to be generated all around you, even though only two speakers are used.

The audio feature supports the following:

- Wave audio recording and playback of up to 16 bits, stereo, and 48 KHz sampling.

- Music CD playback with the computer turned off.

For more information on using the audio function ➡ Online User's Guide.

ThinkPad Modem The ThinkPad modem enables you to send or receive data and faxes over a telephone line.

For more information on using the ThinkPad modem ➡ Online User's Guide.

TrackPoint with Enhanced Controls Your computer has an enhanced TrackPoint function that enables you to make selections merely by pressing on the TrackPoint. A new

center button converts the TrackPoint into a scroll control-
ling device or a magnifying glass on the screen.

For more information on using the TrackPoint ➡
"TrackPoint" on page 9.

PC Card Support Your computer provides two PC Card slots that
accept a 16–bit PC Card, CardBus Card, and Zoomed
Video Card.

For more information on installing PC Cards ➡
"Inserting a PC Card" on page 67.

About This Book

This book contains information that will help you operate the IBM ThinkPad i Series 1400 computer. Be sure to read the *ThinkPad i Series 1400 Setup Guide* and Chapter 1 of this book before using the computer.

Chapter 1. "Getting Familiar with Your Computer," acquaints you with the basic features of your computer

Chapter 2. "Extending the Features of Your Computer," provides information on installing options and using your computer's high-technology features.

Chapter 3. "Protecting Your Computer," provides information on using passwords, and using locks.

Chapter 4. "Solving Computer Problems," describes what to do when you have a computer problem. The chapter includes a troubleshooting guide and information on how to recover lost or damaged software.

Chapter 5. "Getting Service," describes various options of IBM's suppport and service.

Appendix A, Features and Specifications describes the features and specifications associated with your computer, including information on power cords.

Appendix B, Product Warranties and Notices contains the warranty statements for your computer and notices for this book.

The **glossary** defines terms appearing in this book. The book con-
cludes with an **index**.

Safety Information

Electrical Safety Notice

Note: In the U.K., by law:

- The telephone line cable must be connected after the power cord.

- The power cord must be disconnected after the telephone line cable.

⚠

DANGER

> **Electrical current from power, telephone, and communication cables is hazardous. To avoid shock hazard, connect and disconnect cables as shown below when installing, moving, or opening the covers of this product or attached devices. The 3–pin power cord must be used with a properly grounded outlet.**

To Connect	To Disconnect
Turn everything OFF.	Turn everything OFF.
First, attach all cables to devices.	First, remove the power cord from the outlet.
Attach the signal cables to the receptacles.	Remove the signal cables from the receptacles.
Attach the power cord to an outlet.	Remove all cables from device.
Turn the device ON.	
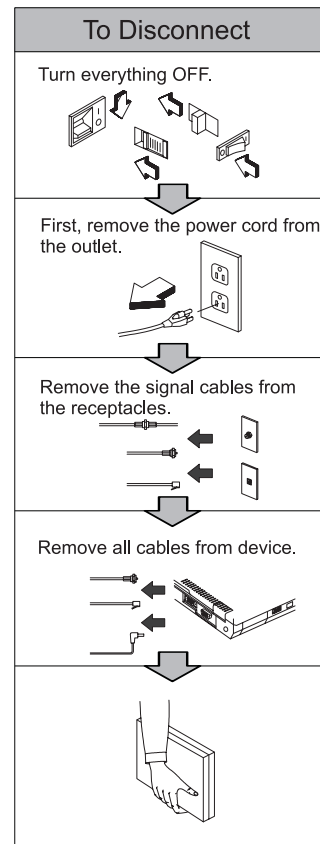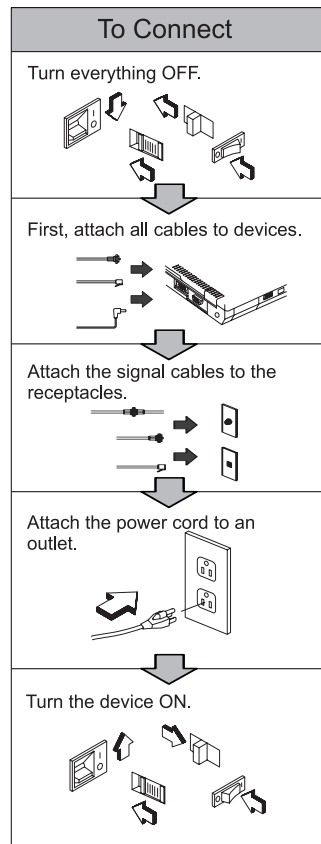
DANGER

> **Do not disassemble, incinerate, or short-circuit the rechargeable battery pack. Do not put it in trash that is disposed of in landfills. Dispose of it as required by local ordinances or regulations. In the United States, call IBM at 1-800-IBM-4333 for information on disposal.**

CAUTION:
The lithium battery (IBM P/N 02K6502 UL-recognized component—File No. MH12210) can be replaced only by your dealer or an IBM service representative. It contains lithium and can explode if not properly used, handled, or disposed of. Do not: (1) throw or immerse into water, (2) heat to more than 100°C (212°F), or (3) attempt to repair or disassemble. Dispose of it as required by local ordinances or regulations.

CAUTION:
The fluorescent lamp in the liquid crystal display (LCD) contains mercury. Do not put it in trash that is disposed of in landfills. Dispose of it as required by local ordinances or regulations.

The LCD is made of glass, and rough handling or dropping the computer can cause the LCD to break. If the LCD breaks and the internal fluid gets into your eyes or on your hands, immediately wash the affected areas with water for at least 15 minutes; then get medical care if any symptoms are present after washing.

Laser Compliance Statement

The CD-ROM drive of the ThinkPad i Series 1400 computer is a laser product. The CD-ROM drive's classification label (shown below) is located on the top of the drive.

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
APPAREIL A LASER DE CLASSE 1
KLASS 1 LASER APPARAT

The CD-ROM drive is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products.

In other countries, the drive is certified to conform to the requirements of EN60825.

⚠

CAUTION:
Do not open the CD-ROM drive; no user adjustments or service-
able parts are inside.

Use of controls, adjustments, or the performance of procedures
other than those specified may result in hazardous radiation
exposure.

Class 1 laser products are not considered to be hazardous. The
CD-ROM drive has an internal, Class 1, 0.5-milliwatt, aluminum
gallium-arsenide laser that operates at a wavelength of 760 to 810
nanometers. The design of the laser system and the CD-ROM drive
ensures that there is no exposure to laser radiation above a Class 1
level during normal operation, user maintenance, or servicing condi-
tions.

Contents

Chapter 1. Getting Familiar with Your Computer

This chapter provides basic information about your computer.

Identifying the Hardware Features

Front View of the Computer
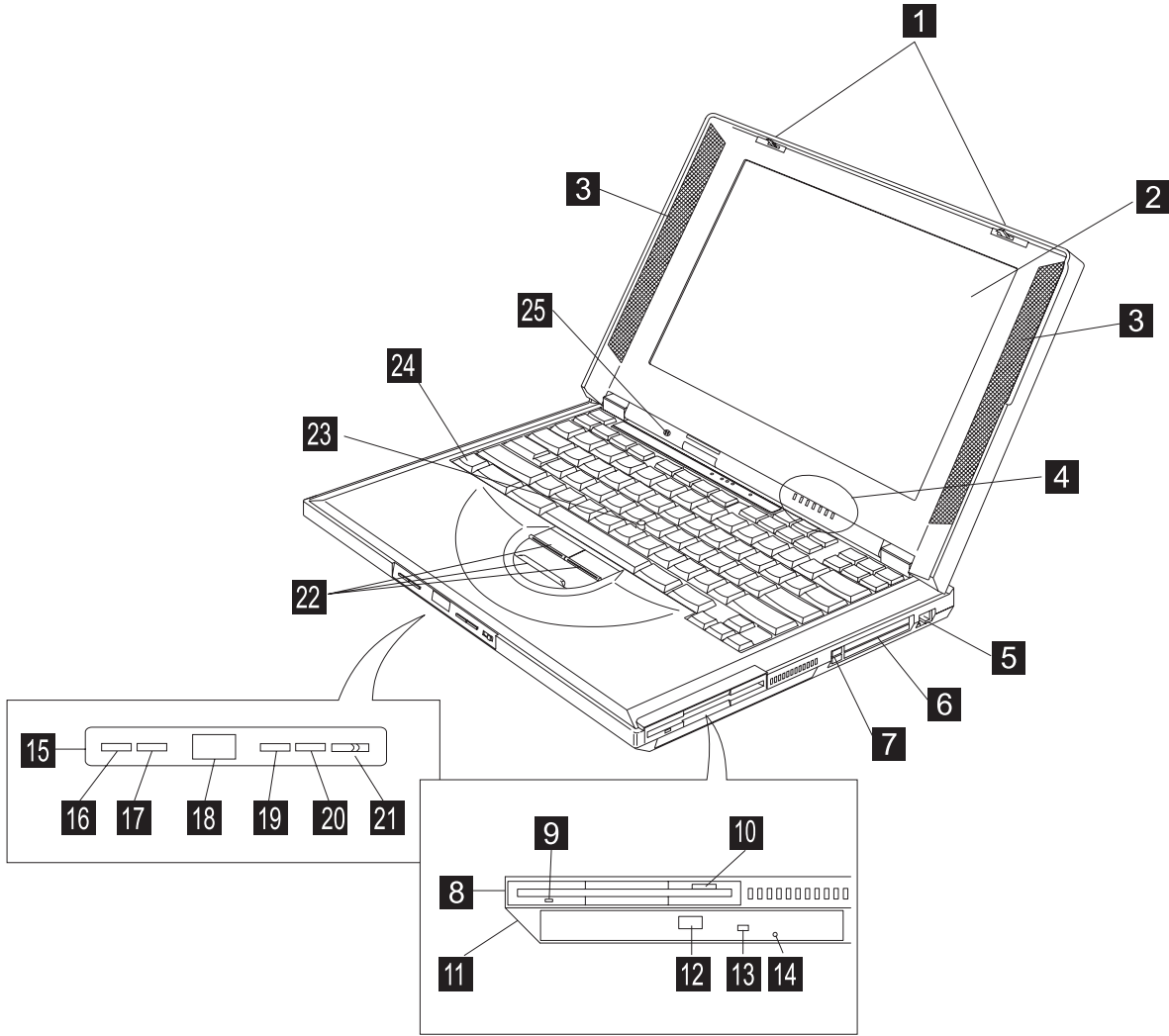
(1)   The **LCD latches** release the LCD when pressed and allow it to
             be opened.

(2)   The **color LCD screen** displays computer output.

(3)   The left and right **internal speakers** generate stereo sound.

(4)   The **indicator panel** consists of the system-status indicators and their associated symbols.

(5)   ⌒-W- The **internal modem port** is used for connecting your computer to an analog telephone line.

(6)   The **PC Card slots** accept PC Cards.

(7)   The **PC Card eject buttons** eject the PC Card from the PC Card slot.

(8)   The **diskette drive**.

(9)   The **diskette-drive-activity indicator** lights up when the computer is accessing the diskette drive.

(10)   The **diskette-eject button** ejects the diskette from the diskette drive.

(11)   The **CD-ROM drive**.

(12)   The **CD-ROM eject button** ejects the CD-ROM tray .

(13)   The **CD-ROM access indicator** is on when data is read from a CD-ROM in the CD-ROM drive.

(14)   The **manual-eject hole** is used to eject the CD-ROM tray when it does not open with the eject button.

(15)   The **audio CD control panel** allows your computer to function like an audio CD player without turning on the computer.

(16)   The **previous track button** jumps to the previous track in the audio CD.

(17)   The **next track button** jumps to the next track in the audio CD.

(18)   The **audio CD status LCD** displays the current track number in the audio CD.

(19)   The **play/pause button** plays or pauses audio CD playback.

(20)   The **stop/eject button** stops audio CD playback and ejects the CD-ROM tray when audio playback is stopped.

(21)   The **audio CD power button** turns the audio CD player on and off when the computer power is off.

(22)   The **TrackPoint buttons** work with the TrackPoint (23) and function similar to the buttons on a mouse.

(23)   The **TrackPoint** is a built-in pointing device that provides a function similar to that of a mouse.

(24)   The **Fn key** is used with the function keys to activate the **Fn** key functions.

(25)   The **built-in microphone** captures sound and voice when it is used with an application program capable of handling audio.

Rear View of the Computer
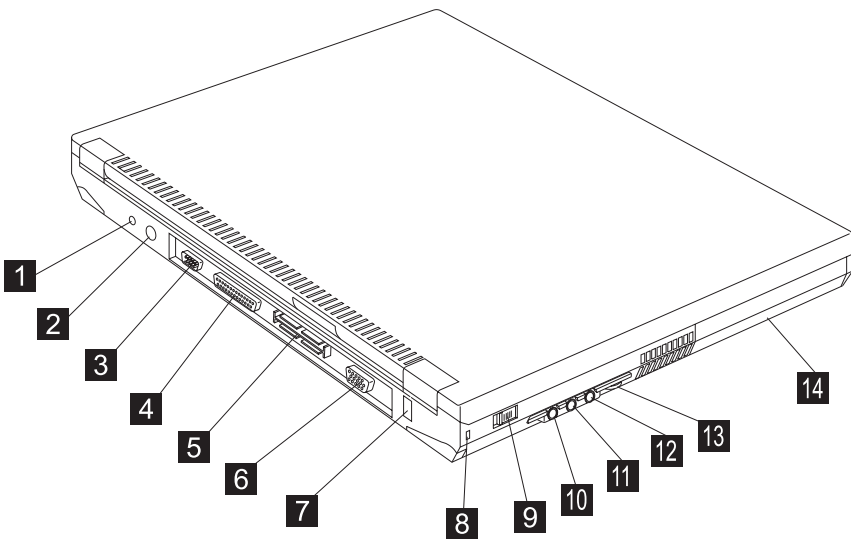
(1)   ⊖⊙⊕ The **power jack** is where the AC Adapter cable is connected.

(2)   The **external-input-device connector** is used to attach a mouse, external keyboard, or external numeric keypad to the computer.

(3)   The **serial connector** is where you connect a 9–pin, serial-device cable.

(4)   The **parallel connector** is where you connect a parallel-printer signal cable.

(5)   The **system-expansion connector** allows you to connect the port replicator.

(6)   The **external-monitor connector** is where you attach the external monitor.

(7)   ●⟶ The **universal serial bus (USB)** allows you to connect any device that conforms to the USB standard.

(8)   The **security keyhole** is used with a mechanical lock.

(9)   The **power switch** turns the computer on and off.

(10)   The **headphone jack**, a ⅛inch (3.5mm) diameter jack, is where you connect stereo headphones or external speakers.

(11)   The **line-in jack**, a ⅛inch (3.5mm) diameter jack, is where you connect an external audio device.

(12)   The **microphone jack**, a ⅛inch (3.5mm) diameter jack, is where you connect a self-powered stereo microphone.

> **Note:** Do not plug any device into the microphone jack except a microphone.

(13)   The **audio volume control** adjusts the volume of the speakers.

(14)   The **battery pack** is a built-in power source for the computer.

Bottom View of the Computer
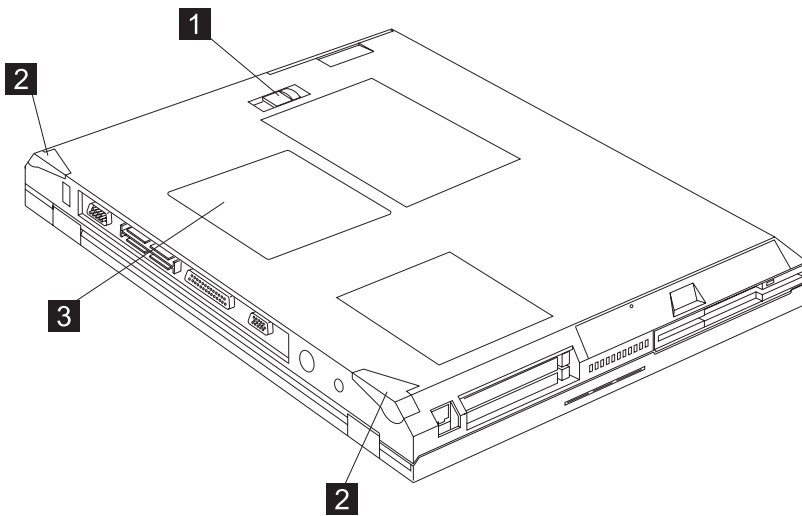
(1)   The **battery-pack latch** locks or releases the battery pack.

(2)   Flip out the **tilt feet** to tilt the computer to an angle for more comfortable use of your computer, especially when typing.

(3)   The **memory-slot cover** covers the memory slot.

            The **two memory slots** accepts dual inline memory module (DIMM) options.

            Note: Base memory (32 MB or 64 MB) occupies one memory slot.

System Status Indicators

The system-status indicators on the computer show the current status of your computer by their on or off states and colors (green and orange). Each indicator is identified with a symbol. The following shows the location and the meaning of each icon:
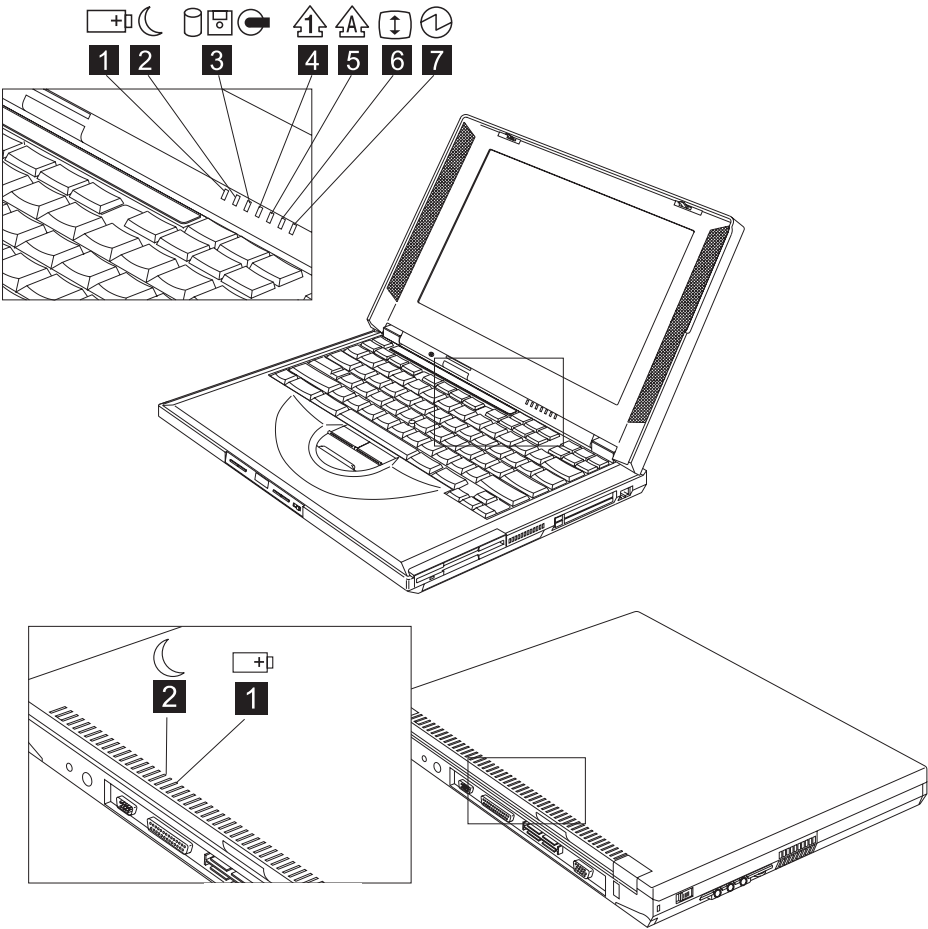
System Status Indicators

Symbol	Color	Meaning
(1) Battery status	Green	Enough battery power remains for operation.
	Blinking orange	The battery pack needs to be charged
	Orange	The battery pack is being charged.
(2) Standby mode	Green	The computer is in standby mode
	Blinking green	The computer is entering or resuming from hibernation mode.
(3) Drive in use	Orange	Data is being read from or written to the hard disk, floppy drive, or data is being read from the CD-ROM drive. Do not enter standby mode or power off the computer when this indicator is on.
(4) Numeric lock	Green	The numeric keypad on the keyboard is enabled. You enable or disable the keypad by pressing and holding the **Shift** key, and pressing the **NumLk** key. For details, see "Numeric Keypad" on page 14.
(5) Caps lock	Green	Caps Lock mode is enabled. All alphabetic characters *(A-Z)* are entered in capital letters without the **Shift** key being pressed. You enable or disable the Caps Lock mode by pressing the **Caps Lock** key.
(6) Scroll lock	Green	Scroll Lock mode is enabled. The **Arrow** keys can be used as screen-scroll function keys. The cursor cannot be moved with the **Arrow** keys. *Not all application programs support this function.* You enable or disable Scroll Lock mode by pressing the **ScrLk** key.
(7) Power on	Green	The computer is operational. This indicator is on when the computer is on.

Distinctive Functions of Your Computer

Your computer has unique keyboard functions and utility programs for easy configuration. This section includes the following topics:

- Keyboard functions
- CD-ROM drive
- ThinkPad utilities
- Online User's Guide

Keyboard Functions

Your computer's keyboard has the following functions:

- TrackPoint
- Fn key
- Numeric keypad

TrackPoint

The keyboard contains a unique cursor-pointing device called the *TrackPoint*. Pointing, selecting, and dragging all become part of a single process you can perform without moving your fingers from their typing position.

The TrackPoint consists of a **stick** on the keyboard and three **click buttons** below the keyboard. Movement of the pointer on the screen is controlled by the amount of pressure you apply to the nonslip cap on the stick in any direction parallel to the keyboard; the stick itself does not move. The speed at which the pointer moves corresponds to the pressure you apply to the stick. The function of the click buttons depends on the software you are using.

Distinctive Functions of Your Computer

Stick

Left click button

Internet Scroll Bar

Right click button
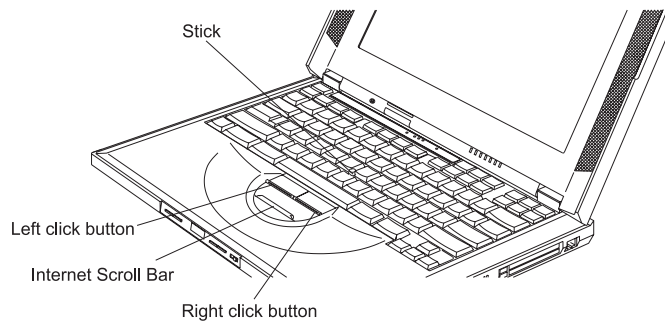
If you are not familiar with using the TrackPoint, these instructions will help you get started:

1. Place your hands in the typing position and press gently with either index finger on the stick in the direction you want the cursor to move.

   Pressing the stick away from you moves the cursor up the screen; pressing it toward you moves the cursor down the screen. You can also move the cursor side to side by pressing sideways.

   Note: The cursor may drift. This is not a defect. Do not use the TrackPoint until the cursor stops moving.

Mouse pointer

Right click button

Internet Scroll Bar

Left click button

Stick
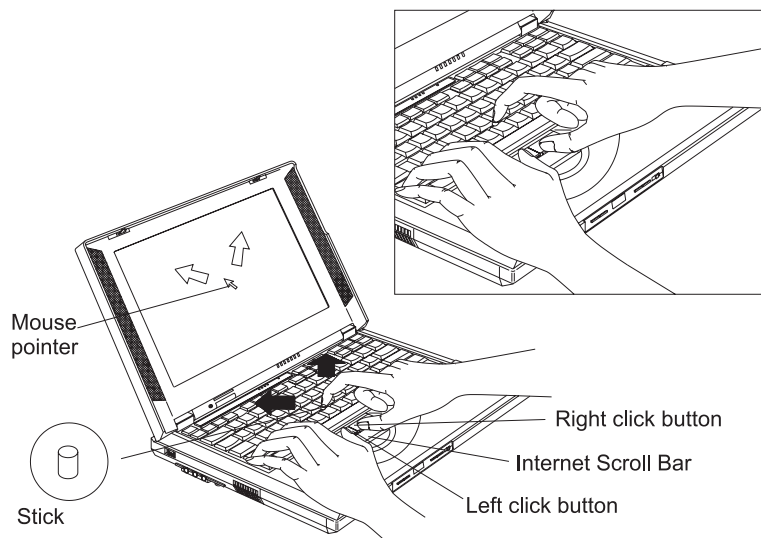
2. Press the click buttons with either thumb to select and drag as required by your software.

> **Changing the Cap**
>
> The cap (1) on the end of the TrackPoint is removable. You can replace it with one of the spares shipped with your computer.
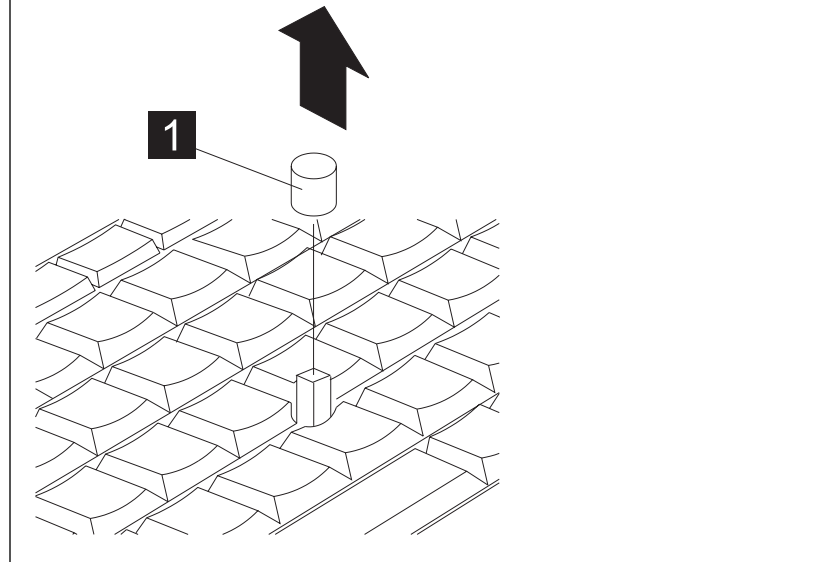
For more information on customizing the TrackPoint ➡ "Customizing the TrackPoint" on page 46.

Fn Key

The **Fn** key function allows you to change operational features instantly. When you use the following functions, press and hold the **Fn** key; then press the appropriate function key (**F1** to **F12**) or other keys (**Home** and **End**).

Distinctive Functions of Your Computer
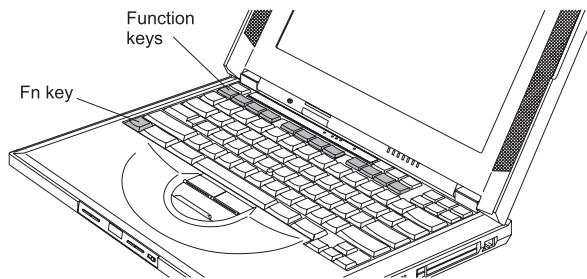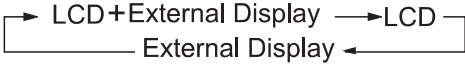
> **The ShortCut Keys Utility Program**
>
> You can customize some Fn Key functions to perform program shortcuts. For more information, see "ShortCut Keys Utility" on page 32.

The following table shows the function of the **Fn** key combined with keys:

Feature and Icon	Key Combination	Meaning
Power Mode Functions		
Power Manage-ment Properties 🔋	**Fn+F2**	If you press this key combination, the Power Management Properties window appears. You can view and set param-eters for battery status in the window.
Power Conservation Functions for Battery Power		
Screen blanking ⊠	**Fn+F3**	The computer blanks the screen (turns off the LCD back-light) to save power. Press any key or move the cursor to resume.
Standby mode ☾	**Fn+F4**	The computer enters standby mode. For more information about this mode ➡ Online User's Guide
Hibernation mode	**Fn+F12**	The computer enters hibernation mode. For more informa-tion about this mode ➡ Online User's Guide
Other Functions		
ShortCut Keys Utility **?**	**Fn+F1**	The ShortCut Keys Utility program appears. For more information about this program, see "ShortCut Keys Utility" on page 32.
Switching between the LCD and the external monitor 🖥	**Fn+F9**	Computer output is displayed in the following order when an external monitor ➡ LCD+External Display ➡ LCD ⟶ External Display ⟵
Increase bright-ness ▲ ☀	**Fn+Home**	This increases the brightness of the computer LCD.
Decrease bright-ness ☀ ▼	**Fn+End**	This decreases the brightness of the computer LCD.
Customizable keys	**Fn+F5 to Fn+F8**	Use the ShortCut Keys Utility (Fn+F1) to choose programs or files to launch with the customized ShortCut key.

Numeric Keypad

The keyboard has some keys that, when enabled, work as if they were on a 10-key numeric keypad. (The numeric keypad on the keyboard is not active when the external keyboard or the external numeric keypad is attached to the computer.)

To enable or disable the numeric keypad, press and hold **Shift** and then press **NumLk**.
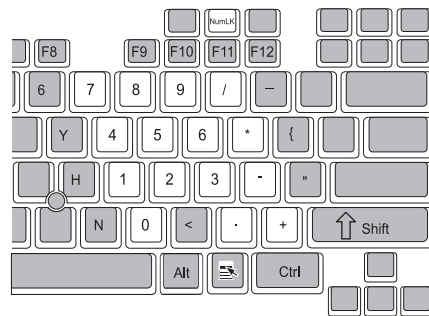
If the numeric keypad is enabled, press and hold **Shift** to temporarily use the cursor- and screen-control keys.

Note: The functions of the cursor- and screen-control keys are not printed on the keys.
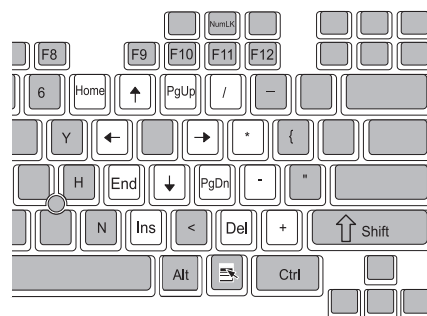
CD-ROM Drive

The ThinkPad i Series 1400 computer come with a built-in CD-ROM drive. The CD-ROM drive allows you to use compact discs (CDs).

The following CDs are supported by the computer:

- Music CDs
- Photo CDs
- CD-ROM or CD-ROM XA
- Video CDs

To use the CD-ROM drive, do the following:

1. Turn on the computer.
2. Push the CD-ROM eject button on the side of the computer; then pull out the CD-ROM tray.
3. Fit your CD on the center pivot. Firmly press the CD down until you hear it click into place.
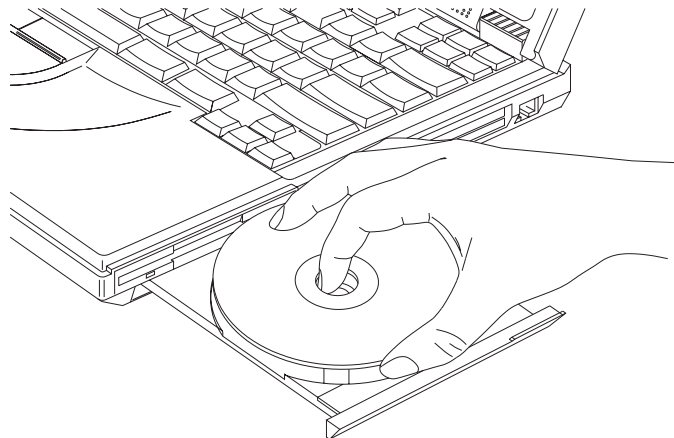
4. Push the tray into the computer until it fully closes.

The way you access the data on the CD depends on what type of CD it is.

To remove the CD, do the following:

1. Close the application program that uses the CD.

Distinctive Functions of Your Computer

2. Push the CD-ROM eject button on the side of the computer; then pull out the CD-ROM tray.

3. Lift the CD by its edge while pressing the pivot.
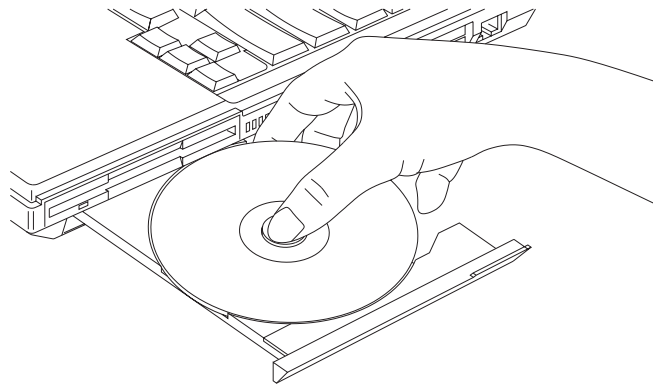
4. Push the tray into the computer until it fully closes.

Playing Music CDs

The ThinkPad i Series 1400 computer allows you to play music CDs without turning on the computer.

Easy-to-use front panel audio CD controls turn your computer into a music CD player. To play a music CD without turning on the system:

1. Slide the audio CD power button to the right, then release it.

2. Press the stop button to eject the CD-ROM tray; then pull out the CD-ROM tray.

3. Fit your music CD on the center pivot. Firmly press the CD down until you hear it click into place.

4. Push the tray into the computer until it fully closes.

5. Wait until the number "1" appears on the audio CD status LCD.

6. Press the audio CD playback controls to play the tracks on the music CD.

7. Adjust the volume if necessary.

Note: The music CD player has power-saving features. Press a playback control button to wake up the music CD player.

Handling CDs

CDs are high-density media that must be handled with care and kept clean to ensure that data remains readable. Keep in mind the following to maintain reliability:

- Hold the CD by the edges. Do not touch the surface of the CD.

- To remove dust or fingerprints, wipe the CD from the center to the outside of the disc. Wiping the CD in a circular direction can cause loss of data.

- Do not write on the surface.

- Do not store or place the CD in direct sunlight

- Do not use benzene, thinner, or other cleaners to clean the CD. Use a CD-ROM cleaner kit.

- Do not flex or bend the CD.

ThinkPad Utility Programs

Your ThinkPad computer has the following utility programs for easy configuration:

- BIOS Utility

- Notebook Manager program

- Sleep Manager program

- ShortCut Keys Utility

- SafeOFF Utility

This section summarizes these utility programs.

BIOS Utility

Your computer provides a BIOS Utility which allows you to select various setup parameters:

- **Basic System Settings:** Set date and time.

- **Startup Configuration:** Set startup options.

- **Onboard Devices Configuration:** Set device resource settings.

- **System Security:** Set a password.

Distinctive Functions of Your Computer

- **Power Management:** Set power management settings.
- **Load Default Settings:** Load the default settings for all parameters.

To start the BIOS Setup Utility, do as follows:

1. Remove any diskette from the diskette drive, and remove any CD from the CD-ROM drive; then turn off the computer.

2. Turn on the computer.

3. While the ThinkPad logo is being displayed, wait for beep before pressing **F1**.

   The BIOS Utility menu appears:

BIOS Utility
Basic System Settings Startup Configuration Onboard Devices Configuration System Security Power Management Load Default Settings
↑↓ = Move highlight bar, ↵ = Select, Esc = Exit

4. Move to an item you want to change using the up/down arrow keys, and press **Enter**.

   A submenu is displayed.

5. Change the items you wish to change.

   To change the value of an item, use the left/right arrow keys.

6. Press **Esc** to exit from the submenu.

7. Press **Esc** from the main menu and press **Enter** to save your changes and exit from the BIOS Setup Utility menu.

Your computer restarts.

Note: If you would like to discard your changes, select **No** and press **Enter**.

Basic System Settings: Selecting the **Basic System Settings** item and pressing **Enter** displays the following "Basic System Settings" submenu.

Basic System Settings	Page 1/1

Date --- [Mon Aug 10, 1998]
Time -- [23:43:00]

Diskette Drive A ---------------------------- [1.44MB 3.5-inch]

↑↓ = Move highlight bar, ←—→ = Change setting, F1 = Help

The "Basic System Settings" submenu includes the following:

- **Date** sets the system date.
- **Time** sets the system time.
- **Diskette Drive** shows information on the diskette drive.

Note: You can also set the current date and time in Windows 98.

Startup Configuration: Selecting the **Startup Configuration** item and pressing **Enter** displays the following "Startup Configuration" submenu.

Distinctive Functions of Your Computer

```
┌────────────────────────────────────────────────────────────────────────┐
│                  Startup Configuration                       Page 1/1   │
├────────────────────────────────────────────────────────────────────────┤
│   Boot Display ---------------------------------------------- [Auto]    │
│   Memory Test ---------------------------------------------- [Disabled] │
│   Silent Boot ---------------------------------------------- [Enabled ] │
│   System Boot Drive ----------------------------------- [Drive A Then C] │
│   Boot from CD-ROM ------------------------------------- [Enabled ]      │
│   CardBus Support  ------------------------------------- [Enabled ]      │
│   USB Function Support --------------------------------- [Disabled]      │
│   Screen Expansion ------------------------------------- [Enabled ]      │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
├────────────────────────────────────────────────────────────────────────┤
│   ↑↓ = Move highlight bar, ←→ = Change setting, F1 = Help                │
└────────────────────────────────────────────────────────────────────────┘
```

This submenu is used to set startup options and change the startup sequence of the drives in your computer. It includes the following:

- **Boot Display** sets the display output device on start up. For more information, see "Display Output Location" on page 62.

- **Memory Test** enables or disables the memory test program to run during startup.

- **Silent Boot** enables or disables the startup screen.

  When enabled, the startup screen displays the IBM ThinkPad logo.

- **System Boot Drive** specifies the start up sequence of local drives.

- **Boot from CD-ROM** enables or disables startup from the CD-ROM drive before going through the "System Boot Drive" sequence.

- **CardBus Support** enables or disables CardBus support on your computer.

- **USB Function Support** enables or disables the USB function on your computer.

- **Screen Expansion** expands or shrinks the screen on your computer. For more information, see 63.

Onboard Devices Configuration: Selecting the **Onboard Devices Configuration** item and pressing **Enter** displays the following "Onboard Devices Configuration" submenu.

```
                    Onboard Devices Configuration                Page 1/1

Serial Port ------------------------------------------------ [Enabled ]
    Base Address ----------------------------------------- [3F8h]
    IRQ ------------------------------------------------------ [4 ]
Parallel Port ----------------------------------------------- [Enabled ]
    Base Address ----------------------------------------- [3BCh]
    IRQ ------------------------------------------------------ [7 ]
    Operation Mode -------------------------------------- [Bi-directional]
    ECP DMA Channel ----------------------------------- [-]





↑↓ = Move highlight bar, ←→ = Change setting, F1 = Help
```

Note: You do not need to change the settings in the screen because the default settings are already optimized for you. Changing the values may cause device conflicts.

The "Onboard Devices Configuration" submenu includes the following:

- **Serial Port section** enables and sets the resources values for the serial port.

- **Parallel Port section** enables and sets the resource values for the parallel port.

System Security: Selecting the **System Security** item and pressing **Enter** displays the following "System Security" submenu.

```
                        System Security                    Page 1/1

Setup Password -------------------------------------- [ None  ]
Power-on Password ----------------------------------- [ None  ]














↑↓ = Move highlight bar, ←→ = Change setting, F1 = Help
```

This submenu is used to set the power-on password, and setup password. For more information, go to "Using Passwords" on page 74.

Power Management: Selecting the **Power Management** item and pressing **Enter** displays the following "Power Management" submenu.

```
                        Power Management                    Page 1/1

  Will not Enter Standby even if the LCD is closed ---- [Disabled]

  Hotkey Beep -------------------------------------------- [Enabled ]

  Battery-low Warning Beep ------------------------------ [Enabled ]
  Sleep Upon Battery-low -------------------------------- [Enabled ]




  ↑↓ = Move highlight bar, ←→ = Change setting, F1 = Help
```

The "Power Management" submenu includes the following:

- **Will not Enter Standby even if the LCD is closed** enables or disables the computer to continue operation even if the LCD is closed.

- **Hotkey Beep** enables or disables beeps when an Fn key function is pressed.

- **Battery-low Warning Beep** enables or disables beeps when the computer is running low on battery.

- **Sleep Upon Battery-low** enables or disables the computer to enter hibernation mode if the computer is running low on battery.

  Note: In a battery-low condition, the computer enters hibernation mode if the hibernation file created by Sleep Manager is present and valid. For more information, see "Sleep Manager" on page 30.

Load Default Settings: Selecting this item displays the following
dialog box.

```
Do you want to load default settings?

        [Yes]              [No]
```

To load factory-default settings for all the parameters in the BIOS
Utility, select **Yes** and press **Enter**. Otherwise, select **No** and press
Enter.

Notebook Manager

The Notebook Manager allows you to set passwords, the startup
sequence of drives and power management settings. It also shows
the current hardware configuration.

Note: Display-related **Fn** key functions are disabled when you
access the Notebook Manager.

To start the Notebook Manager program, do as follows:

1. Click on **Start**.

2. Move the cursor to **Programs**, **Notebook Manager**; then click on
   Notebook Manager.

The Notebook Manager program consists of six pages:

- Information Viewer

- POST

- Boot Sequence

- Password

- Power Management

- Display Device

Note: Making changes to most settings in Notebook Manager take
effect the next time the computer restarts. If you make
changes in the Power Management and Display Device
pages, these take effect immediately.

Information Viewer Page: The Information Viewer page summarizes and lists information about the specifications and settings of the different components of your computer.
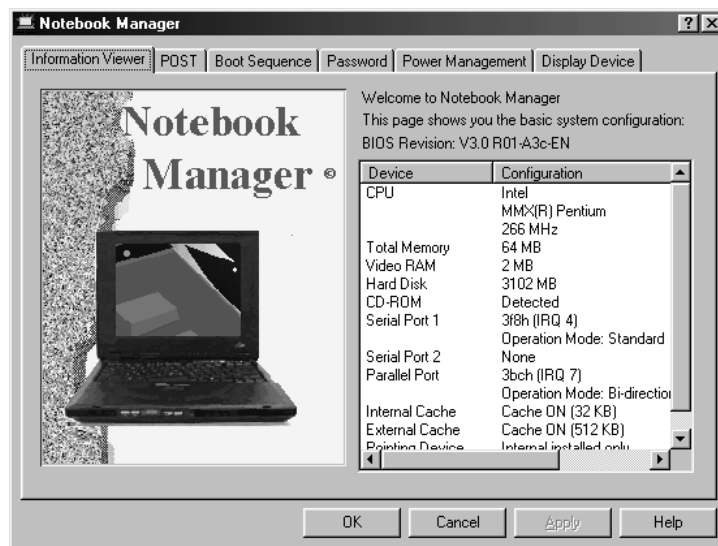
Note: The values and settings in the window above may differ from the ones on your computer.

Click on the **Help** button to learn more about these system components.

POST Page: In the POST page, you can define how you want your computer to behave at startup.
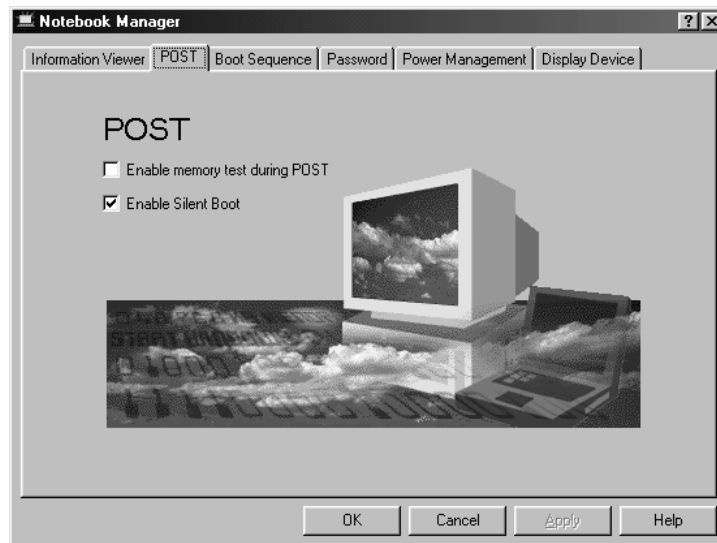
The POST page displays the following items:

- *Enable memory test during POST.* When enabled, the computer runs the memory test program at startup. To speed up booting, you can choose to deselect this item.

- *Enable Silent Boot.* When enabled, the computer hides the startup messages.

Boot Sequence Page: In the Boot Sequence page, you can specify the startup sequence of the drives in your computer.
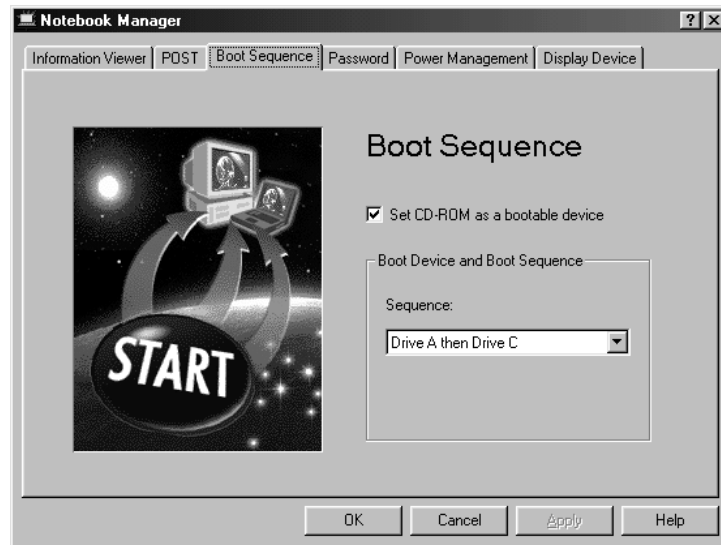
The Boot Sequence page displays the following items:

- *Set CD-ROM as a Bootable Device.* Enabled by default, the computer first checks for a bootable disc in the CD-ROM drive before following the setting in the "Boot Device and Boot Sequence" section.

    Note: When enabled, it will take a long time to boot your com- puter if there is an audio CD, a non-bootable CD, or there is no CD in the CD-ROM drive.

- *Boot Device and Boot Sequence.* This controls the startup sequence of the drives in your computer.

Click on the **Help** button to learn more about these startup sequence settings.

Password Page: In the Password page, you can set, modify, or delete the password(s) for your computer.
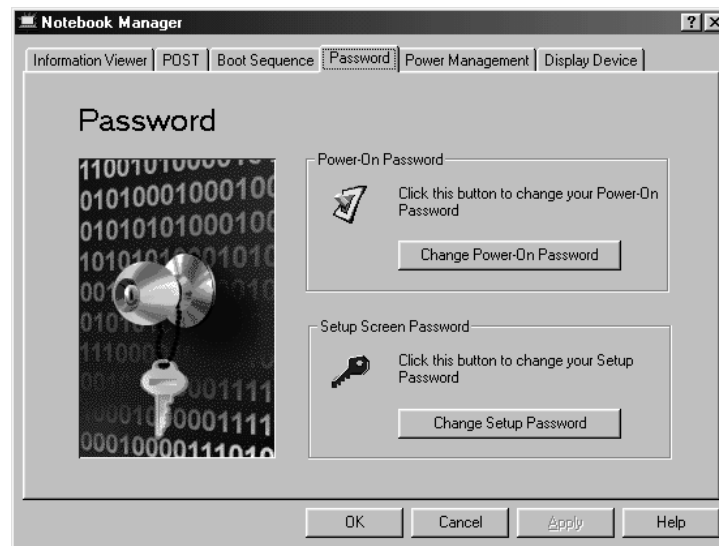
The Password page displays the following items:

- *Power-On Password.* The Power-On Password prevents unauthorized access to your computer at startup and when the computer resumes from hibernation mode..

- *Setup Password.* The Setup Password prevents unauthorized access to the BIOS Utility and Notebook Manager.

For more information on passwords, see Chapter 3, "Protecting Your Computer" on page 73.

Power Management Page: In the Power Management page, you can set various options related to power management.

Notebook Manager ? X

Information Viewer | POST | Boot Sequence | Password | Power Management | Display Device

Power Management

☑ Enable hotkey beep   ☐ Will not standby even if LCD is closed

☐ Enable battery low warning beep   ☐ Enable system resume timer

☐ Enable sleep upon battery low   System Resume Timer
                                    0:0:59 December 2 , 1998

OK   Cancel   Apply   Help
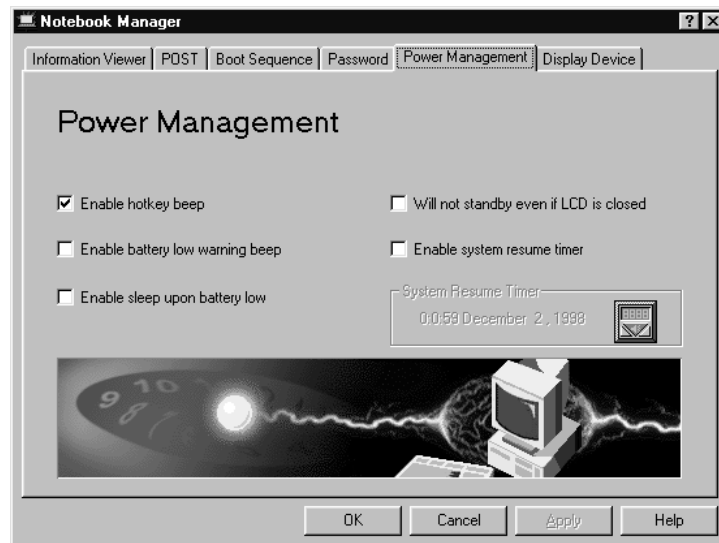
The Power Management page displays the following items:

- *Enable hotkey beep.* When enabled, the computer gives off beeps when an Fn key function is pressed.

- *Enable battery low warning beep.* When enabled, the computer gives off warning beeps when the computer is running low on battery.

- *Enable sleep upon battery low.* When enabled, the computer enters hibernation mode when the computer is running low on battery.

  Note: In a battery-low condition, the computer enters hibernation mode if the hibernation file created by Sleep Manager is present and valid. For more information, see "Sleep Manager" on page 30.

- *Will not standby even if LCD is closed.* When enabled, the computer will continue operation even if the LCD is closed. You may want to enable this option when you attach an external monitor and other external devices to the computer.

Display Device Page: In the Display Device page, you can set options related to your display and attached external display devices.

```
Notebook Manager                                              [?][X]

  Information Viewer | POST | Boot Sequence | Password | Power Management | Display Device

    Display Device

    ┌Boot Display Device──────────┐            ┌──────────┐
    │   ⦿ Auto                     │
    │                             │
    │   ○ Both                     │
    └─────────────────────────────┘

                                        Brightness for LCD Panel (22)
    ┌Switching display device─────┐    ·····················
    │   ⦿ LCD Panel Only          │    ═══════╪════════════
    │                             │
    │   ○ External monitor         │
    │                             │
    │   ○ Both                     │
    └─────────────────────────────┘

                        [  OK  ] [ Cancel ] [ Apply ] [ Help ]
```
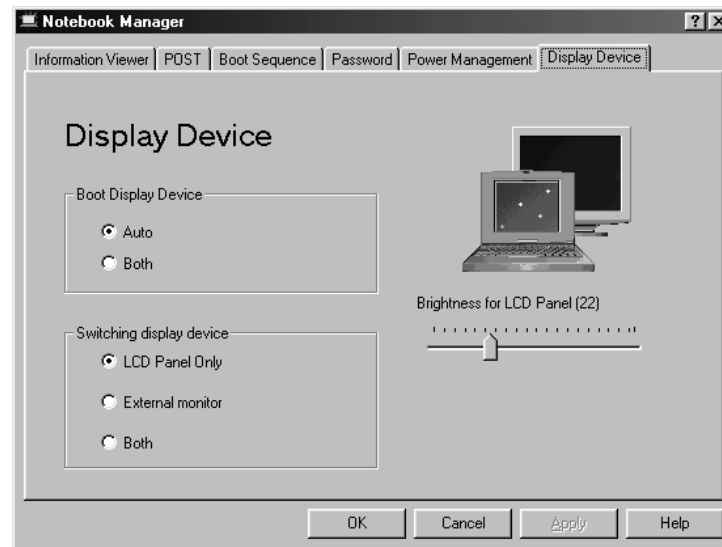
The Display Device page displays the following items:

- *Boot Display Device.* Sets the default display device on startup.

- *Switching Display Device.* Sets the current display device.

    Notes:

    1. You can also press **Fn+F9** to switch between display devices.

    2. Make sure an external monitor is connected before External Monitor is selected.

- *Brightness for LCD Panel.* Sets the brightness level for the computer LCD.

Sleep Manager

The Sleep Manager program works with your computer's BIOS and Windows APM (Advanced Power Management) to manage the hibernation operation on your computer. In hibernation mode, the computer shuts off after saving the current state of your computer into your hard disk drive. The next time you power on your computer, it resumes from where you left off.

Its functions include:

- creating the hibernation file where Sleep Manager saves the current state of the computer

- verifying if the hibernation file is valid, and automatically re-creates and adjusts the file if necessary

- saving and loading the contents of the hibernation file when entering into and resuming from hibernation mode

To open the Sleep Manager program, locate the Sleep Manager icon on the taskbar an double-click on it.

Note: You can also access Sleep Manager as follows:

1. Click on **Start**.

2. Move the cursor to **Programs**, **ThinkPad**; then click on **Sleep Manager**.

The following window appears:
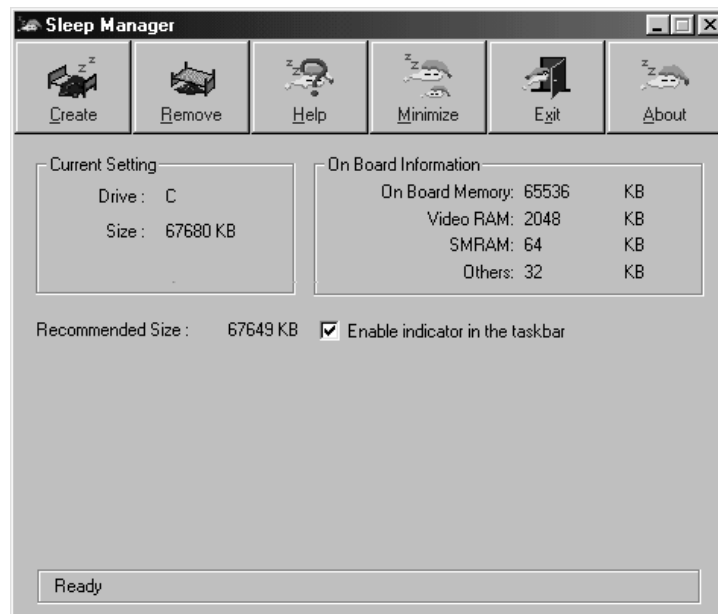
Note: The computer automatically loads Sleep Manager everytime you start Windows 98. When Sleep Manager is active, it takes care of the hibernation file management chores in the back-

ground. Do not close this application or the computer may not enter hibernation mode properly.

Click on the **Help** button to learn more about the Sleep Manager program.

ShortCut Keys Utility

The ShortCut Keys Utility program describes the Fn Key functions and allows you to customize certain Fn key functions to perform your desired program shortcuts.

Note: For more information on Fn Key functions, see "Fn Key" on page 11.

To start the ShortCut Keys Utility, press **Fn+F1**.

Note: You can also run the ShortCut Keys Utility as follows:

1. Click on **Start**.

2. Move the cursor to **Programs**, **ThinkPad**; then click on **ShortCut Keys Utility**.

The following window appears:

Note: The window includes instructions on how to use the ShortCut Keys Utility.

SafeOFF Utility

The SafeOFF Utility protects the computer from being accidentally turned off. If you accidentally pressed the power switch, a dialog box pops up to confirm the shutdown process.
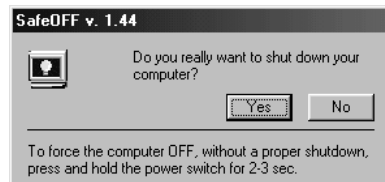
- If you select **No**, the dialog box closes and the computer does not power off.

- If you select **Yes**, the computer automatically performs the Windows 98 shutdown process. Opened files can be saved and closed safely.

- If none of the options is chosen, this utility waits for 30 seconds before shutting down the computer.

Online User's Guide

Your ThinkPad computer features an online user's guide, so that you will always have key information at your fingertips even if you are traveling. It contains the following information:

- Basic:
  - Using your computer outside your country
  - Using the audio and modem features
  - Using your computer with a battery pack
  - Using your computer with a PC Card
- Advanced:
  - Installing software
  - Using system management
- Troubleshooting:
  - Resolving system resource conflicts
  - Solving computer problems

To start the online user's guide, click on **Start**, move the cursor to **Programs** and **ThinkPad i Series**; then click on **ThinkPad Online User's Guide**.

The Online User's Guide appears. Go to the section you want, and make a printout if necessary.

Note: You can start the Online User's Guide from the ThinkPad Customization CD as follows:

1. From the ThinkPad Customization Center main menu, click on **Online Library**.

2. Click on **Click here to launch the Online User's Guide**.

Backing Up Your System

To back up your system or reinstall the operating system, your ThinkPad computer has the following features:

Note: These features are for Windows 98. You can also get the latest hardware device drivers from the ThinkPad Web site (see "ThinkPad Web Site or Bulletin Board" on page 36).

- The ThinkPad Customization CD

- The Recovery CD

- ThinkPad Web site or bulletin board

For more information about recovering lost or damaged software ➡ "Recovering Lost or Damaged Software" on page 109.

ThinkPad Customization CD

You can customize your system using this CD. It contains all the software applications and hardware device drivers for your computer. It features the ThinkPad Customization Center, which protects your data. (To use the ThinkPad Customization CD ➡ "Using the ThinkPad Customization CD" on page 109.

Recovery CD

If you accidentally erase your hard disk, you can use the Recovery CD to restore the contents of the preinstalled hard disk to what it was at the time of purchase. (To use the Recovery CD ➡ "Using the Recovery CD" on page 111.

Diskette Factory

The Diskette Factory program contains all the hardware device drivers for your computer.

Also, you can recover a device driver if you do not have a CD-ROM drive and cannot use the ThinkPad Customization CD. With this program, you can create the utility and device driver diskettes. (To use the Diskette Factory ➡ "Using the Diskette Factory" on page 110.

ThinkPad Web Site or Bulletin Board

IBM supplies all of the latest hardware device drivers and system BIOS for your computer on the ThinkPad Web site:
http://www.pc.ibm.com/thinkpad

You can also use the IBM bulletin board service.

For more information about electronic service and support ➡ Chapter 5, "Getting Service" on page 113.

Replacing the Battery Pack

To replace the battery pack, do as follows:

1. Power off your computer.

2. Disconnect the AC Adapter and cables.

3. Close the LCD and turn the computer over.

4. Slide and hold the battery pack latch to the unlocked position (1); then remove the battery pack (2).
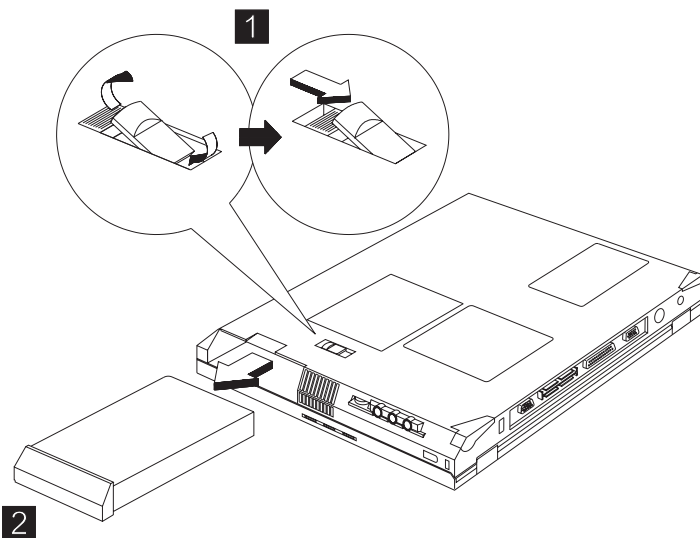
5. To install the new battery pack, insert it into the battery bay. The battery-pack latch automatically snaps into place.

You have finished replacing the battery pack.

Note: You can replace the battery pack when the computer is in hibernation mode or when it is powered off. If you are using a PC Card, the computer might not be able to enter hibernation mode. If this happens power off the computer.

Handling Your Computer

By using common sense and by following these handling tips, you will get the most use and enjoyment out of your ThinkPad computer for a long time to come.

Notebook computers are precision machines that require a bit of careful handling. Though the IBM ThinkPad computer is designed and tested to be a durable notebook computer that functions reliably in normal work environments, you need to use some common sense when handling it.

Note: If you power off the computer, wait at least 5 seconds before you power it on again.

ThinkPad Don'ts

- Do not subject your computer to physical punishment, such as dropping or bumping.

- Do not place heavy objects on your computer.

- Do not spill or allow liquids into your computer.

- Do not use your computer in or near water (to avoid the danger of electrical shock).

- Do not pack your computer in a tightly packed suitcase or bag. The compression might cause internal damage.

- Do not disassemble your computer. Only an authorized IBM ThinkPad repair technician should disassemble and repair your computer.

- Do not scratch, twist, hit, or push the surface of your computer display.

- Do not place any objects between the display and the keyboard.

- Do not pick up or hold your computer by the display. When picking up your open computer, hold it by the bottom (keyboard) half.

- Do not modify or tape the latches to keep the display open or closed.

- Do not turn your computer over while the AC Adapter is plugged in. This could break the adapter plug.

- Do not use your computer when the temperature is below 5°C or above 35°C (41°F to 95°F).

- Do not place your computer closer than 13 cm (5 in.) from any electrical appliance that generates a strong magnetic field, such as a motor, a magnet, a TV, a refrigerator, or large audio speakers.

- Do not hard-mount your computer in a vehicle or anywhere that it is subject to strong vibration. See "Ruggedized Mobile Computers" on page 41 for information on a more appropriate model for demanding applications.

- Do not press on the middle part of the CD-ROM drive.

- Do not insert a diskette at an angle. Not inserting the diskette straight into the drive can damage the head.

- Do not place more than one label on a diskette. Multiple or loose labels can detach or tear and then lodge in the drive.

- Do not touch the lens on the CD-ROM tray.

- Do not touch the surface of a compact disc; handle the compact disc only by its edges.

- Do not connect the modem to a PBX (private branch exchange) or other digital telephone extension line. **Your computer can use only a public-switched telephone network (PSTN)**. Use of a phone line other than PSTN can damage your modem. If you are not sure which kind of phone line you are using, contact your telephone company. Many hotels or office buildings use digital telephone extension lines, so check before connecting the telephone cable in such places.

- Do not leave the base of your computer in contact with your lap or any part of your body for an extended period when the computer is functioning or when the battery is charging. Your computer dissipates some heat during normal operation. This heat is a function of the level of the system activity and battery charge level.

ThinkPad Do's

- Treat your computer like a precision piece of electronic machinery.

- Retain and store packing materials safely out of reach of children to prevent the risk of suffocation from plastic bags.

- Register your ThinkPad products with IBM (refer to the *Setup Guide*). This can help authorities return your computer to you if it is lost or stolen. Registering your computer also enables IBM to notify you about possible upgrades.

- Check the IBM web pages at **www.pc.ibm.com** periodically to get current information about your computer.

Cleaning Your Computer

Occasionally clean your computer as follows:

- Use a soft cloth moistened with a nonalkaline detergent to wipe the exterior of the computer.

- Don't spray cleaner directly on the display or the keyboard.

- Gently wipe the LCD with a dry, soft cloth. Avoid using alcohol or detergent to clean the LCD.

Carrying the Computer

When carrying the computer, follow these instructions to prevent possible damage to your computer and data.

1. Remove any media from the CD-ROM drive or diskette drive.

2. Turn off all attached devices.

3. Turn off the computer and close the LCD.

4. Unplug all external cables and cords connected to the computer.

5. Make sure all computer doors and covers are closed.

6. Use a quality carrying case that provides adequate cushion and protection.

Preserving Battery Pack Life

The amount of battery power consumed by your computer depends on such conditions as the usage frequency, the operating temperature, and the period in storage (if unused). The following tips can help you extend the life of your battery:

- If your battery is brand new and you are charging it for the first time, it might not become fully charged due to the characteristics of the chemicals in the cell. To maximize performance, ensure that all chemicals in the battery are fully activated by cycling the battery (fully charge, then fully discharge) three times. This procedure is also recommended if you stored the battery for a few months.

- Do not charge the battery pack until all of its power is used. Recharging a battery pack that is not completely dishcarged can shorten battery life.

- Once you start charging the battery pack, do not use it until it is fully charged.

Maximizing Battery-Powered Operation

- Whenever possible, use the ThinkPad battery power-saving modes:

  - **Standby:** The LCD and the hard disk drive are turned off.

  - **Hibernation:** All tasks are stopped. The memory data and the current status of the computer are stored in the hard disk drive; then the power is turned off.

- Decrease the LCD brightness.

- Use Advanced Power Management (APM). Each operating system comes with its own APM.

- Remove the battery pack and keep it in a cool place if you will not be using the computer for a long period.

Ruggedized Mobile Computers

Some professionals work in environments that may require special ruggedized features to protect their computers from extreme temperature, humidity, and physical punishment. Construction, public service, distribution, repair service, and utilities are some of the envi-

ronmentally demanding professions that may require rugged mobile computers that can withstand stresses. For these applications, IBM offers such computers (not ThinkPad systems) especially designed for mobile professionals who need a system for managing and communicating information from the field.

For more information on these computers, consult your IBM Business Partner or visit our website at:

www.networking.ibm.com/wireless

Ergonomics Information

This is important information you should read before using your portable ThinkPad computer in your "virtual office".

Working in the virtual office may mean adapting to frequent changes in your environment. Following some simple "rules of the road" will make things easier and bring you the maximum benefits of your ThinkPad computer. Keeping in mind such basics as good lighting and proper seating, for example, can go a long way in helping you enhance your performance and achieve greater comfort wherever you are.

What if I am traveling?

It may not be possible to observe the best ergonomic practices when you are using the ThinkPad computer while on the move or in a "casual" setting. Regardless of the setting, try to observe as many of the tips for proper usage as possible. Sitting properly and using adequate lighting, for example, will help you maintain desirable comfort and performance levels.

Questions about vision?

IBM's visual display screens are designed to meet the highest standards and to provide you with clear, crisp images and large, bright displays that are easy to see, yet easy on the eyes. Of course, any concentrated and sustained visual activity can be tiring. If you have questions on eye fatigue or visual discomfort, consult a vision care specialist for advice.

Note: The example shown here is someone in a traditional setting. Even when not in such a setting, you can follow many of these tips. Develop good habits, and they will serve you well.
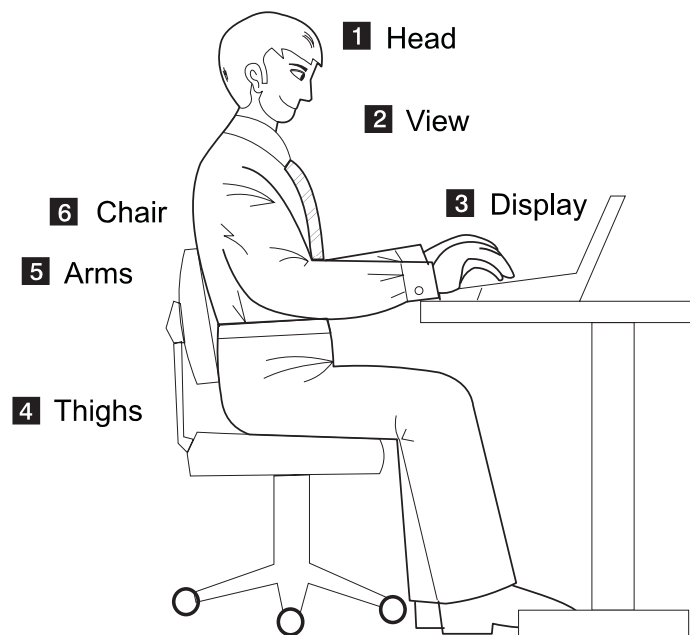
(1)   **Head**

Keep your head in a comfortable and vertical position.
(2)   **View**

Maintain a comfortable viewing distance of 510-760 mm (20-30 in.).
(3)   **Display**

Position the display to avoid glare or reflections from overhead lighting or outside sources of light. Keep the display screen clean and set the contrast and brightness to levels that allow you to see the screen clearly.
(4)   **Thighs**

Keep your thighs parallel to the floor and your feet flat on the floor or on a footrest.
(5)   **Arms**

Keep your forearms, wrists, and hands in a relaxed and neutral position. Don't pound the keys; type with a soft touch.

(6)   **Chair**

Use a chair that gives you good back support.

For More Information

For information from the World Wide Web	www.us.pc.ibm.com
	www.networking.ibm.com/wireless
To access the IBM PC Company Bulletin Board	1 919 517-0001
For product information sent directly to your fax machine	1 800 IBM-3395
	(1 800 426-3395)
IBM PC Product Guide Directory	Select FaxDoc #12745
	(to specific product sections)
IBM ThinkPad Information Directory	Select FaxDoc #11078

Chapter 2. Extending the Features of Your Computer

This chapter provides information on how to customize and extend the ThinkPad's features. You can use the ThinkPad with external devices and increase the memory.

Customizing the TrackPoint

You can customize the TrackPoint by doing the following:

1. Click on **Start**.

2. Move the cursor to **Settings**, then click on **Control Panel**.

3. Double-click on **TrackPoint**.

   The "TrackPoint Properties" window appears.

   You can set the following features in this window:

   - Press-to-Select

   - Sensitivity

   - Scrolling or Magnifying Glass

     Note: To use the scrolling and magnifying glass functions, you must disconnect any external mouse and enable the TrackPoint.

   You can set the features by going to pages corresponding to the tabs.

Using the Press-to-Select Page
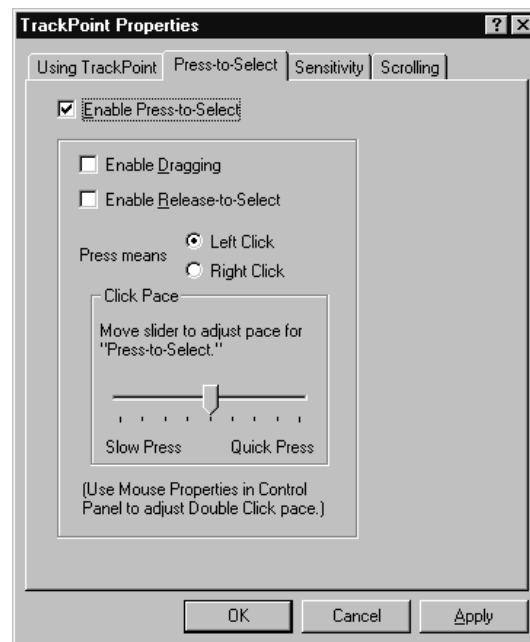
If you enable Press-to-Select by putting a check mark in the **Enable Press-to-Select** box, you can make the TrackPoint stick function the same as the left or right click button on the keyboard.

- If you check **Enable dragging**, you can drag the icon that you select with the TrackPoint stick by putting light pressure on the stick.

- If you check **Enable Release-to-Select**, you can click simply by lifting your finger quickly off the TrackPoint. Moving the cursor onto an icon and then lifting your finger off the TrackPoint works like clicking. Pressing the TrackPoint again works like double-clicking.

- Click one of the **Press means** radio buttons to select which button the stick will simulate: either the left or the right button. For example, if you select **Left Click**, you can start a program with the TrackPoint by putting the pointer on the program's icon and applying light pressure on the stick.

  To adjust the pressing timing of the stick, set **Click Pace**.

Customizing the TrackPoint

Note: If you set the pace too slow, you might notice unintended clicks, a pointer delay, or a dragging delay. However, if you set the pace too fast, you might find Press-to-Select hard to use.

Using the Sensitivity Page
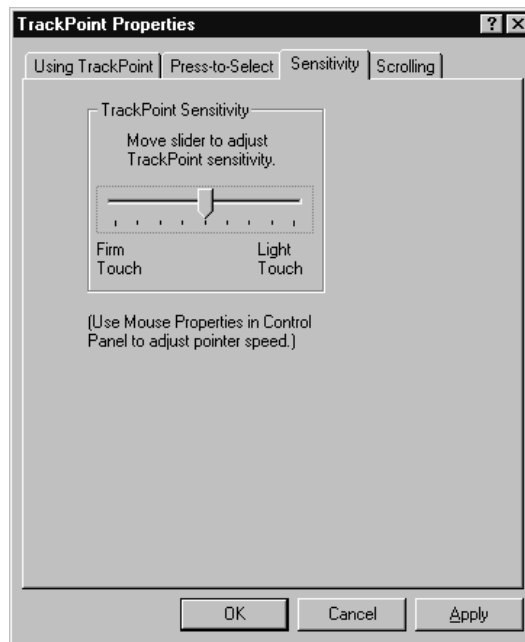
This function adjusts the force required for both cursor movement
and Press-to-Select. Slide toward **Firm Touch** to increase the force
needed to move the pointer, and to increase the force needed to
activate Press-to-Select. Slide toward **Light Touch** to decrease the
force needed to move the pointer, and to reduce the force needed to
activate Press-to-Select.

Using the Scrolling Page
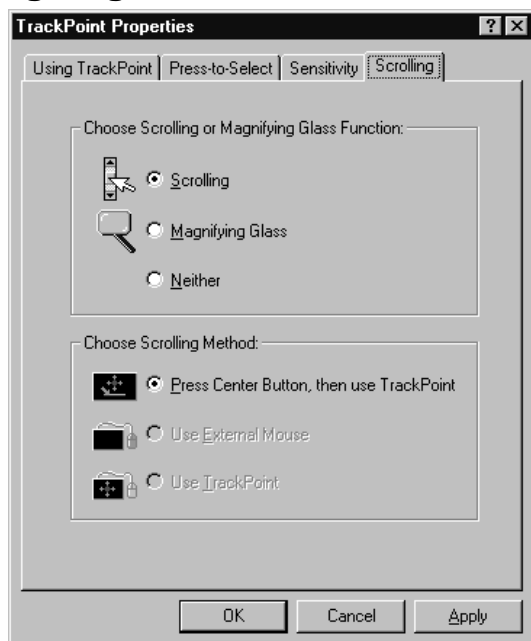
Note: To use the scrolling and magnifying glass functions, you must disconnect any external mouse and enable the TrackPoint.

By clicking on the **Scrolling** tab, you can set the scrolling properties of your TrackPoint:

- **Choose Scrolling or Magnifying Glass Function** Select one of the following radio buttons:

  − **Scrolling**

    This function enables you to navigate easily through long documents or large spreadsheets with a press of a button. To scroll, press the Internet Scroll Bar and then use the TrackPoint instead of the scroll bars in any program.

  − **Magnifying Glass**

    This function enables you to enlarge a movable area of your display. You can click on objects "through" the magnifying glass. The right button changes the size of the magnifying glass, and left button changes its magnifying power. Move

the magnified area the same way as you use the scrolling function; in other words, press the Internet Scroll Bar (center button) and then use the TrackPoint to move the magnified area.

– **Neither**

This function disables the scrolling and magnifying glass functions.

- **Choose Scrolling Method**:

  – **Press Center Button, then use TrackPoint**

  Holding down the Internet Scroll Bar on the keyboard allows the TrackPoint to control the scrolling or the magnifying glass. The TrackPoint operates normally (controls the mouse cursor) when the Internet Scroll Bar is not pressed.

  Note: The **Use External Mouse** and the **Use TrackPoint** radio buttons are not supported.

Increasing Memory

Increasing memory capacity is an effective way to make programs run faster. You can increase the amount of memory in your computer by installing a dual inline memory module (DIMM), available as an option.
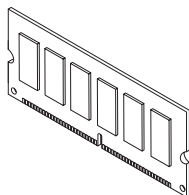
Different capacities of DIMM are available. You can install DIMMs directly in the memory slots on the bottom of the computer. Your computer memory capacity can be expanded up to 256 MB (two 128 MB DIMM options).

Note: Base memory (32 MB or 64 MB) occupies one DIMM slot.

Attention: The ThinkPad i Series 1400 computer supports the static dynamic random access memory (SDRAM) card only. It does not support the enhanced data output dynamic random access memory (EDO DRAM) card. If you install a DIMM that is not supported by your computer, an error code might appear when the system starts. The appropriate memory option can be purchased through your IBM reseller or IBM marketing representative.

To install the DIMM, do the following:

1. Power off the computer; then disconnect the AC Adapter and all cables from the computer.

2. Close the LCD, turn the computer over, and then remove the battery pack.

3. Loosen the screws on the memory slot cover; then remove the cover.
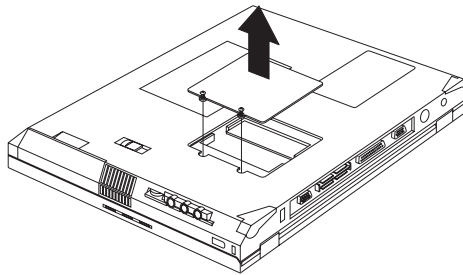
4. Install the DIMM into the memory slot.

   Attention: To avoid damaging the DIMM, do not touch its contact edge.

   a. Find the notch on the side of the DIMM.

   b. With the notched end of the DIMM toward the right side of the socket, insert the DIMM, at an angle or approximately 20°, into the socket; then press it firmly (1).

   c. Pivot the DIMM until it snaps into place (2).

      If you want to install two DIMMs, repeat these steps.
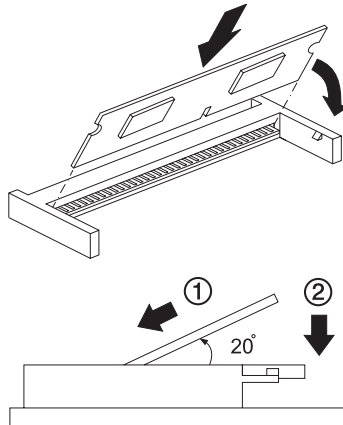
5. Replace the memory slot cover over the memory slot, aligning the back side of the cover first as shown; then tighten the screws.

6. Replace the battery pack.

7. Turn the computer over again, power on the computer.

8. Confirm that the new memory size is detected:

   a. While the ThinkPad logo is being displayed, wait for a beep before pressing **F1** to enter the BIOS Utility.

   b. Select **Startup Configuration** and press **Enter**.

   c. Enable **Memory Test** and disable **Silent Boot**.

   d. Save the changes and exit the BIOS Utility.

   e. Verify the memory value (shown near the top left corner of the screen) when the computer restarts.

      Note: After you have verified the memory value, shutdown and restart the computer. Enter the BIOS Utility to disable Memory Test and enable Silent Boot.

9. You have finished installing the DIMM. Reconnect all cables.

Notes:

1. If the total memory size is not the same as the value you calculated, power off the computer and see pages 54 and 52 to reinstall the DIMM.

2. If you changed the memory installed in the computer, Sleep Manager automatically updates the hibernation file (see "Sleep Manager" on page 30).

How to Calculate Total Memory Size

Calculate your total memory size in kilobytes (KB) by adding the DIMM memory size to the base memory size (32384 KB for a computer with 32 MB base memory).

Note: 384 KB is reserved by the system.

For example, if you installed a 32MB DIMM to a computer with 32 MB base memory, you should have about 64 MB.

Your computer displays the memory size in kilobytes. For example, 640 KB (system memory) + 64512 (extended memory) = 65152 KB.

Removing a DIMM

If you need to remove a DIMM, follow these steps:

1. Power off the computer an disconnect the AC Adapter and all cables from the computer.

2. Close the LCD, turn the computer over, and then remove the battery pack.

3. Loosen the screw and remove the memory slot cover.

4. Press out on the latches on both edges of the socket at the same time.
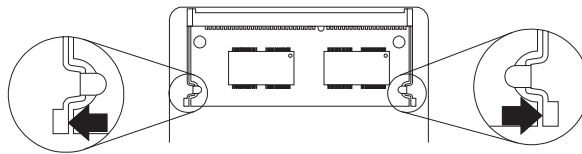
5. Remove the DIMM.

   Be sure to save the DIMM for future use.

6. Replace the memory slot cover; then tighten the screws.

7. Replace the battery pack.

8. Turn the computer over again; then connect the AC Adapter and all the cables you disconnected.

Note: Base memory (32 MB or 64 MB) occupies one DIMM slot.

Attaching an External Mouse, Keypad or Keyboard

This section explains how to attach an external mouse, external numeric keypad, and external keyboard to your computer.

Attaching an External Mouse or Numeric Keypad

You can attach an external mouse or numeric keypad to the

external-input-device connector ( ) on the rear of the computer.
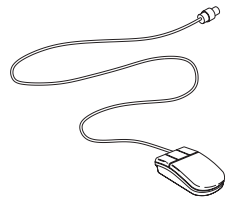
Mouse   **External keypad**

If you want to attach the mouse, do as follows:

1. Turn off the computer.

2. Attach the mouse directly to the external-input-device connector as shown:
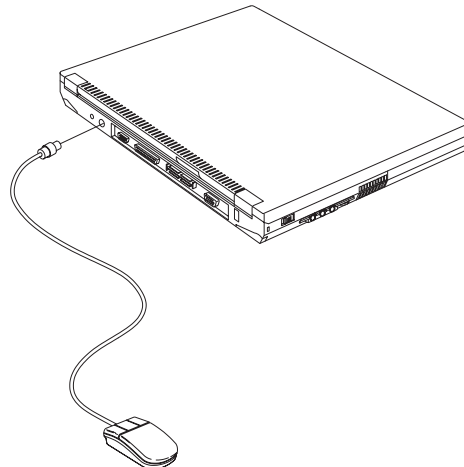
3. Turn on the computer.

   The TrackPoint is disabled automatically.

Attention: If you want to use a serial mouse, you need to connect the mouse, and disable the TrackPoint (see "Disabling the TrackPoint" on page 59). If you are connecting an external mouse other than a serial mouse or a PS/2 mouse, you need to connect the mouse, then restart the computer).

If you want to use both the external numeric keypad and mouse at the same time, first connect the keypad cable to the computer; then connect the mouse cable to the connector at the rear of the keypad.
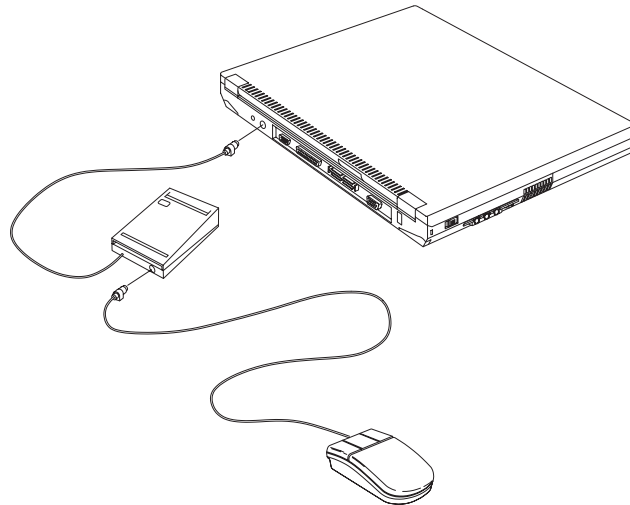
Note: You can remove the keypad cover and use it as a stand for the keypad.
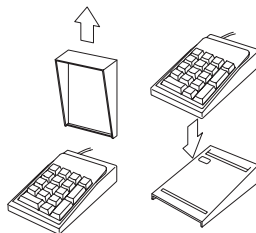
Attaching an External Keyboard and Mouse
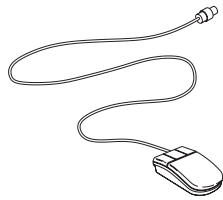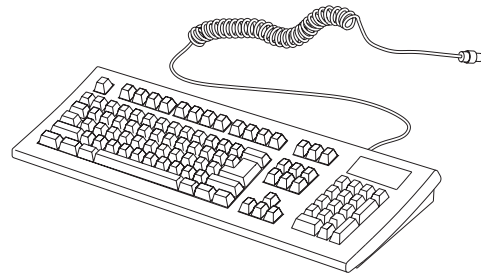
Mouse   **External keyboard**

You can connect an external keyboard to your computer either directly through the external input-device connector or through the keyboard/mouse cable (available separately as an option).

When the external keyboard is attached, the following keys are not available:

- Numeric keypad on the computer keyboard
- External numeric keypad

Instead, use the numeric keypad on the external keyboard.

To attach the external keyboard, turn off the computer, attach the keyboard to the keyboard connector of the keyboard/mouse cable (1), and then attach the keyboard/mouse cable to the computer (2).

You can attach a mouse to the mouse connector of the keyboard/mouse cable.
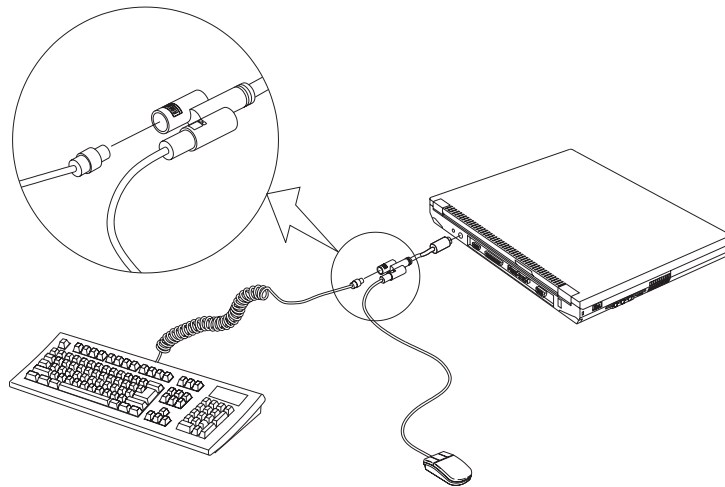
Using the IBM ThinkPad Space Saver Keyboard

When using the IBM ThinkPad Space Saver Keyboard, **do not** install the device driver supplied with the Space Saver Keyboard. The TrackPoint on the ThinkPad is disabled when you use the Spacer Saver Keyboard.

Disabling the TrackPoint

Using a serial mouse requires the TrackPoint to be disabled before you can use them.

To disable the TrackPoint:

Note: Before you disable the TrackPoint, make sure you connect an external mouse. If you connect a serial mouse and have not installed the serial mouse driver, run the **Add New Hardware Wizard** in the Control Panel to install the driver.

1. Click on **Start**, move the cursor to **Settings**, then click on **Control Panel**.

2. Double-click on **System**.

3. Click on the **Device Manager** tab.

4. Double-click on **Mouse**.

5. Double-click on **PS/2 TrackPoint**.

Attaching an External Mouse, Keypad or Keyboard

6. Put a checkmark before **Disable in this hardware profile**.

7. Click on **OK**.

Note: To enable the TrackPoint, remove the checkmark before **Disable in this hardware profile**.

Attaching an External Monitor

This section provides information about using the computer LCD and an external monitor. It also provides things to consider when using DOS applications.

The LCD of your computer uses thin-film transistor (TFT) technology. The LCD displays output with XGA (1024x768 resolution) and 64K colors or SVGA (800x600 resolution) video mode and 16M colors.

If you are attaching an external monitor that supports a resolution higher than XGA mode, you can achieve a maximum of 1280x1024 video resolution.

To attach an external monitor, do the following:

 1. Connect the external monitor to the external-monitor connector (

) at the rear of the computer; then connect the monitor to an electrical outlet.

 2. Turn on the monitor.

 3. Press **Fn+F9**.

    Note: You can also change the display output location as follows:

      a. Start the Notebook Manager program. (See "Notebook Manager" on page 24.)

      b. Click on the **Display Device** tab.

      c. Change the display output location by clicking on the **Both** or **External monitor** radio button in the "Switching display device" section.

      d. Click on **OK**.

Notes:

1. If you select **Both**, do not attach an external monitor that sup-
   ports only VGA mode (640x480 resolution). Otherwise, the
   external monitor is scrambled and output is not displayed, or the
   screen might be damaged. Use **External monitor** instead.

2. Set your monitor type and display device driver as follows:

   If you are attaching an SVGA monitor, refer "Display Modes" on
   page 63 for information on the supported color depth or resol-
   ution.

   a. Click on **Start**, **Settings**, **Control Panel**.

   b. Double-click on **Display**.

   c. Double-click on the **Settings** tab.

   d. Click on the **Advanced...** button.

   e. Click on the **Monitor** tab.

   f. Click on the **Change...** button.

      You can select your monitor type from the monitor list, or
      click on a new resolution or refresh rates.

   Note: Refer to the specifications for your external monitor to
   determine its supported resolutions and refresh rates.

3. Restart the computer to make the changes effective.

Display Output Location

Attention: Do not change the display output location while a moving
picture is being drawn—for example, while playing a movie or a
game. Stop the application before changing the display output
location.

You can change the display output location with the Notebook
Manager program. Select one of the following display output
locations:

- LCD Panel Only: The computer output is displayed only on the
  LCD of the computer.

- External monitor: The computer output is display only on the
  attached external monitor.

If no external monitor is attached to the computer and the display output location is set to External Display, the output is displayed on the LCD.

- Both: The computer output is displayed on both the LCD and the external monitor.

You can also change the display output location using the **Fn** key function. Press and hold the **Fn** key; then press the **F9** key. The output is displayed sequentially as follows:

```
 ┌─► LCD+External Display ──►LCD ┐
 └──────────── External Display ◄──────┘
```
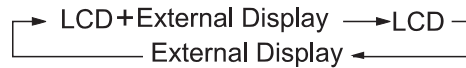
```
┌─ Important ──────────────────────────────────────┐
│                                                  │
│  Do not disconnect the external monitor while the computer is in │
│  hibernation mode. If no external monitor is attached when the   │
│  computer resumes, the LCD remains blank and output is not dis-  │
│  played. This restriction does not depend on the resolution value. │
│                                                  │
└──────────────────────────────────────────────────┘
```

The DOS Screen Image on the LCD

If you use a DOS application that supports only VGA mode (640x480 resolution) with your computer, the screen image might appear smaller than the display size, as shown:

```
┌───────────────────┐
│  ┌───────────┐    │
│  │           │    │
│  │ 640 x 480 │    │
│  │           │    │
│  └───────────┘    │
│                   │
└───────────────────┘
```
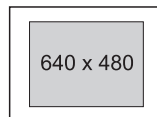
This is to maintain compatibility with DOS applications. To expand the screen image to the same size as the actual screen, you can use the screen expansion function. You can expand the screen image by enabling **Screen Expansion** in the Startup Configuration menu of the BIOS Utility. (See "Startup Configuration" on page 19.) However, the image might look slightly distorted.

Display Modes

The ThinkPad i Series 1400 computer has an LCD that supports an XGA (1024x768 resolution) video mode or an SVGA (800x600 resol-

Attaching an External Monitor

ution) video mode. The following table shows the various display modes (resolution and color depth) available with your computer or external monitor. Use this table to set the display output (**LCD Panel Only**, **External monitor** or **Both**).

Note: When installing an operating system, you must install the display driver supplied with the computer to use SVGA mode.

- Display output on the LCD, or both on the LCD and external monitor (**LCD Panel Only** or **Both**).

Resolution	Supported Color Depth
640x480 (VGA)	16, 256, 65,536, and 16,777,216
800x600 (SVGA)	256, 65,536, and 16,777,216
1024x768 (XGA) (available only for 13.3–inch models)	256, and 65,536

- Display output only on the external monitor (**External monitor**).

Resolution	Supported Color Depth	Frame Rate
640x480 (VGA)	256	60 Hz, 75 Hz, or 85 Hz
	65,536	
	16,777,216	
800x600 (SVGA)	256	60 Hz, 75 Hz, or 85 Hz
	65,536	
	16,777,216	
1024x768 (XGA)	256	60 Hz, 70 Hz, or 75Hz
	65,536	
1280x1024	256	60 Hz

Note: If you are using an old external monitor, the resolution and color depth might be limited.

Attaching a Printer

Any parallel printer with the standard Centronics** interface can be attached to the 25–pin, parallel connector at the rear of the computer.

1. Attach the printer as shown.
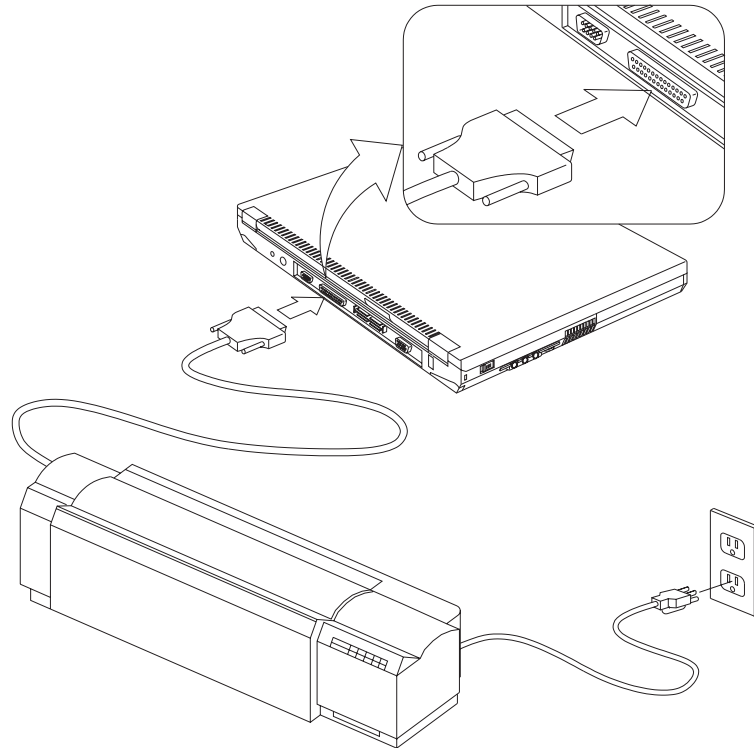
2. Turn on the printer.

Inserting a PC Card

This section describes how to prepare to use a PC Card.
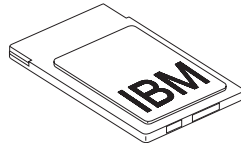
Your computer has two PC Card slots (upper slot and lower slot) and supports the following types of cards:

- PC Card (Type I, Type II, and Type III)

- CardBus

- Zoomed Video (ZV)

To install a PC Card in your computer, do the following:

1. Find the notched edge (1) of the PC Card as shown.
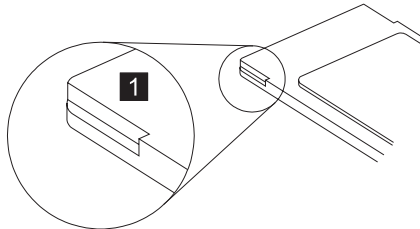
2. Insert the PC Card into the appropriate slot according to your PC Card type.

   - If you are using a PC Card with an XJACK** connector, insert it into the upper slot.

   - If you are using a Type I or Type II PC Card, insert it into either the upper slot or the lower slot.

   - If you are using a Type III PC Card, insert it into the lower slot.

   - If you are using a ZV PC Card, insert it into the lower slot.

Upper slot
Lower slot
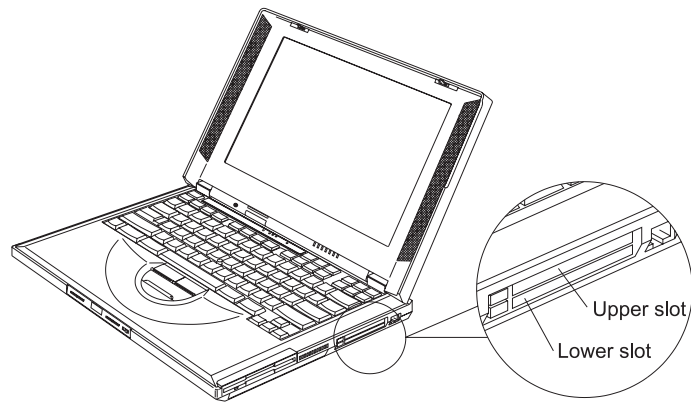
3. Press the PC Card firmly into the connector.

A window appears and informs you about the new card.

Note: If you have installed the PC Card driver, Windows 98 starts "PCMCIA Card Services Wizard" to install it. Follow the instructions on the screen.

You have completed setting up the PC Card, and you can now use it. For more information on how to use the PC Card software ▶ "Basic" in the Online User's Guide.

Removing the PC Card

Before removing a PC Card, **you must stop it**. Otherwise, the system might freeze or data might be corrupted or lost.

1. Stop the card.

To stop the PC Card, find the PC Card icon on the right side of the taskbar; then click on the icon and click on Stop. For more information ▶ "Basic" in the Online User's Guide.

2. Press the PC Card eject button to pop out the button. Then press it again until the PC Card pops out.

3. Remove the PC Card and store it safely for future use.

**Inserting a PC Card**

Eject button
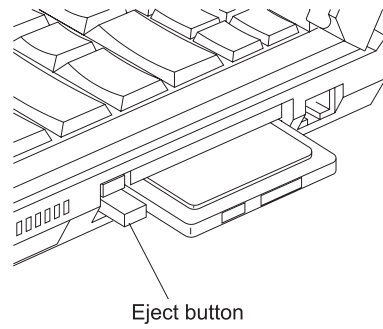
For more information for using a PC Card ➡ "Basic" in the Online
User's Guide.

Using a Port Replicator
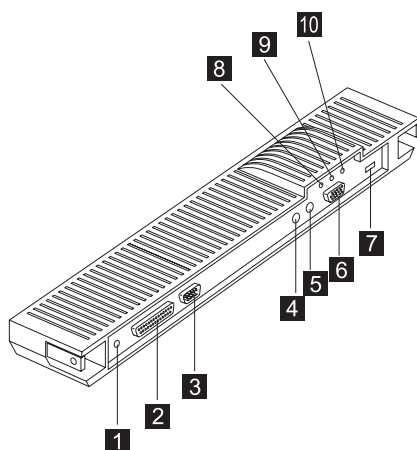
(1) ⊖⊙⊕ The **power jack** is where the AC Adapter cable is con-
nected.

(2) The **parallel connector** is where you connect a parallel-
printer signal cable.

(3) The **serial connector** is where you connect a 9–pin, serial-
device cable.

(4) The **external-mouse connector** is used to attach a mouse to
the computer.

(5) The **external-keyboard connector** is used to attach an
external keyboard, or external numeric keypad to the computer.

(6) The **external-monitor connector** is where you attach the
external monitor.

(7) ●⇌ The **universal serial bus (USB)** allows you to connect any
device that conforms to the USB standard.

(8) The **headphone jack**, a ⅛inch (3.5mm) diameter jack, is where
you connect stereo headphones or external speakers.

(9) ⊖→ The **line-in jack**, a ⅛inch (3.5mm) diameter jack, is where
you connect an external audio device.

(10)   The **microphone jack**, a ⅛inch (3.5mm) diameter jack, is where you connect a self-powered stereo microphone.

> **Note:** Do not plug any device into the microphone jack except a microphone.

To attach the port replicator, do as follows:

1. Close the display.

2. Align and connect the system-expansion connector of the computer to the system-expansion connector of the port replicator.
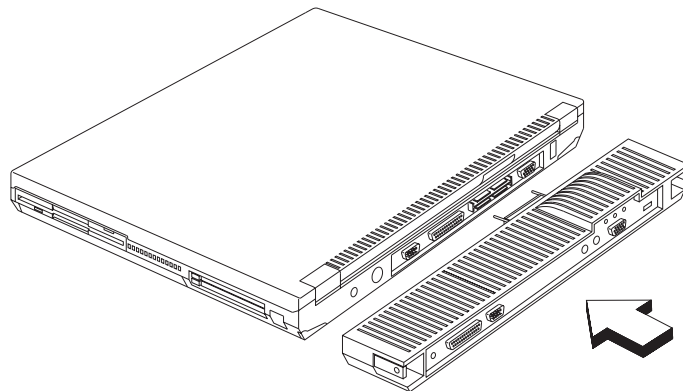
After you attach your computer to a port replicator, all connectors on the rear of the computer are covered and are not available for use. Instead, you can use the connectors on the port replicator, plus extra features.

To detach the port replicator, do as follows:

1. Close the display.

2. Press the release levers on both sides of the port replicator and disconnect the computer.

Using a Port Replicator
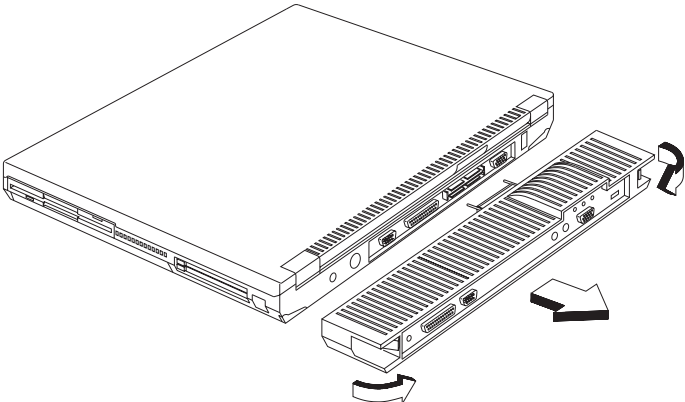
Chapter 3. Protecting Your Computer

This chapter provides information about how to protect your computer from theft or unauthorized use.

Using Passwords

The password-setting feature helps to prevent your computer from being used by others. Once you set a password, a prompt appears on the screen each time you turn on the computer. You must enter your password at the prompt. You cannot use the computer unless you type the correct password. You can set the following passwords on your computer:

- Power-on password

  Set the power-on password to protect your computer from use by another person. It provides the following security features:

  – You need to type the power-on password at startup. Therefore, unauthorized users cannot use your computer.

  – You need to type the power-on password when resuming from hibernation mode. Therefore, unauthorized users cannot use your computer.

- Setup password

  Set the setup password to prevent unauthorized changes to your computer's configuration. It provides the following security features:

  – You need to type the setup password to access the BIOS Utility. Therefore, unauthorized users cannot make changes to your computer's configuration.

  – You need to type the setup password to access the Note-book Manager in Windows 98. Therefore, unauthorized users cannot make changes to your computer's configuration.

- Other password

  Some Microsoft operating systems provide special Windows passwords. Refer to that system's user's guide for information on how to set, change, and use these passwords.

Entering a Password

Once you set a power-on password, a password prompt appears at the top left corner of the screen.

┌─────────────────┐
│ ○─╖   │
│   │
└─────────────────┘

Each time you turn on your computer or when your computer returns from hibernation mode to normal operation.

To enter a password, do the following:

1. Type your password.

   Don't hold down a key too long, because the same character will be entered continuously.

2. Press the **Enter** key.

   An **X** appears if you enter the wrong password. If you fail to enter the correct password in three tries, you must press and hold the power switch for 5 seconds to turn off the computer, wait 5 seconds, and then turn it on again and retry.

Setting a Password

To set a password, do the following:

1. Restart the computer.

2. While the ThinkPad logo is being displayed, wait for beep before pressing **F1**.

   The BIOS Utility menu appears.

3. Select **System Security** and press **Enter**. The "System Security" submenu appears:

System Security	Page 1/1
Setup Password -- [None]	
Power-on Password ----------------------------------- [None]	

   ↑↓ = Move highlight bar, ←→ = Change setting, F1 = Help

   - **Setup Password** Selecting this displays a window for setting the setup password.

   - **Power-On Password** Selecting this displays a window for setting the power-on password.

4. Select the type of password you want to set, and press the left/right arrow key. The set password box appears.

   ⊶

5. Type your desired password and press **Enter**.

> **Note:** You can type a maximum of seven random characters using a combination of letters (*A* to *Z*) and numbers (*0* to *9*). Uppercase and lowercase letters (for example, *A* and *a*) are treated as the same character.
>
> If you type a wrong character, use the **Backspace** key to erase it and then type the correct one.

6. Type your password again and press **Enter** to verify it.

> **Note:** Write down the password and keep it in a safe place.

Do Not Forget Your Password

If you forget your hard disk or setup password, you have to take your computer to an IBM reseller or IBM marketing representative to have the password reset. Proof or purchase is required, and an additional charge might be required for the service.

Removing and Changing a Password

To change or remove a password, do the following:

1. Restart the computer.

2. While the ThinkPad logo is being displayed, wait for beep before pressing **F1**.

   The BIOS Utility menu appears.

   If the setup password is set, you need to enter it correctly before you can enter the BIOS Utility.

3. Select **System Security** and press **Enter**. The "System Security" submenu appears.

4. Select the type of password you want to change or remove, and press the left/right arrow key to remove the current password.

5. Type your desired new password and press **Enter**.

   > **Note:** If you want to remove the password, do not type anything. Leave the box blank.

6. Type your new password again and press **Enter** to verify it.

   > **Note:** Write down the password and keep it in a safe place.

Using Passwords

> **Note:** You can also set, remove and change passwords using the
> Notebook Manager program. See "Notebook Manager" on
> page 24.

Using Locks

You can attach a mechanical lock to your computer, to help to prevent it from being removed without your permission.

Attach a mechanical lock to the keyhole on the left side of the computer; then secure the chain on the lock to a secure stationary object.
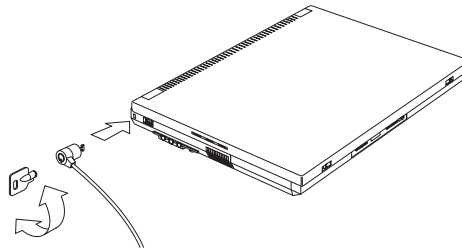
Note: You are responsible for evaluating, selecting, and implementing the locking devices and security features. IBM makes no comments, judgements, or warranties about the function, quality, or performance of locking devices and security features.

Chapter 4. Solving Computer Problems

Frequently Asked Questions

This section addresses frequently asked questions. Go to the page indicated in the following chart and do the specified action.

Questions	Page
How to stop the screen from blanking	83
How to set the serial port	83
How to switch the TrackPoint and mouse	83
How to set the display resolution	84
How to set the external monitor	85
How to maximize the battery life	86
How to install the operating system	87
How to use the Recovery CD	87

My screen keeps blanking when I do not want it to. How do I stop this?

You can change the power management timers with the Power Mangement Properties window.

1. Press **Fn+F2**.

2. Set a longer time-out value for "Turn off monitor".

3. Click on **OK**.

How do I use my serial port as a communication port?

You can disable your ThinkPad's serial port in order to free resources for another communication device. If the serial port is disabled, you need to enable it before you use it again. To enable your serial port, do as follows:

1. Save your work and quit any program you are using.

2. Shutdown and restart your computer.

3. Press **F1** while the ThinkPad logo is being displayed to enter the BIOS Utility.

4. Select **Onboard Devices Configuration** and press **Enter**.

5. Verify if the **Serial Port** is enabled.

6. Save the changes and exit the BIOS Utility.

After your serial port is enabled, you can use it as a communication port. If it does not work properly, you might have a problem with the communication software application on your system or the device that you are trying to communicate with. Check the online help system for your communication software if the other device appears to be working properly.

How can I use an external mouse when I am at my desk, but then use the TrackPoint when I am away from my desk?

For a serial mouse:

To use a serial mouse, do as follows:

1. Save your work and quit any program you are using.

2. Connect the serial mouse.

3. Disable the TrackPoint (see "Disabling the TrackPoint" on page 59).

To use the TrackPoint again, do as follows:

1. Save your work and quit any program you are using.

2. Re-enable the TrackPoint (see "Disabling the TrackPoint" on page 59).

3. Turn off your computer.

4. Disconnect the serial mouse.

5. Turn on the computer.

For an external mouse other than a serial mouse or a PS/2 mouse:

To use an external mouse, do as follows:

1. Save your work and quit any program you are using.

2. Turn off your computer.

3. Connect the external mouse.

4. Turn on the computer.

   The TrackPoint is automatically disabled.

To use the TrackPoint again, do as follows:

1. Save your work and quit any program you are using.

2. Turn off your computer.

3. Disconnect the external mouse.

4. Turn on the computer.

Note: For a USB mouse, you can choose to disable the TrackPoint (see "Disabling the TrackPoint" on page 59).

Why do I not get the highest possible resolution out of my external monitor when I am using the LCD and external monitor at the same time?

You can set any resolution for either the ThinkPad LCD or the external monitor. When you use both at the same time, the resolution of both is the same. If you set a higher resolution for the ThinkPad LCD, you can see only part of the screen at a time. You can see other parts by moving the image with the TrackPoint or other pointing device. You can change the display output type to the LCD, external monitor, or both with the **Switching Display Device** buttons of the Notebook Manager program or with **Fn+F9**.

You can set up the external monitor as follows:

1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**.

2. Double-click on **Display**.

   The "Display Properties" window appears.

3. Click on the **Settings** tab.

4. Click on **Advanced...** button.

5. Click on the **Monitor** tab.

6. Click on the **Change...** button.

7. Select the **Model** and **Manufacturer** of your monitor.

8. Click on **OK**; then **Close**.

9. Set the **Colors** and **Screen area** in the "Display Properties" windows.

10. Click on **OK**.

How can I set up the external monitor if the Windows plug-and-play feature does not detect it?

Do as follows:

1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**.

2. Double-click on **Display**.

   The "Display Properties" window appears.

3. Click on the **Settings** tab.

4. Click on **Advanced...** button.

5. Click on the **Monitor** tab.

6. Make sure that **Automatically detect Plug & Play monitors.** is checked.

7. If the option is checked and your monitor is still not recognized after you restart the computer, click on the **Change** button.

8. Select the **Model** and **Manufacturer** of your monitor.

9. Click on **OK**; then **Close**.

10. If you are prompted to restart your computer, click on **OK**.

How do I maximize battery life?

To maximize battery life, do the following:

- Use the battery pack until the charge is completely depleted (until the battery status and power LEDs flash in unison).

- Recharge the battery pack completely before using (the battery is fully charged when the AC Adapter is plugged in and the battery status LED is green).

- For a new battery pack or a battery pack that you have not used recently:

  1. Use the battery pack until the charge is completely depleted (until the battery status and power LEDs flash in unison).

  2. Recharge the battery pack completely before using (the battery is fully charged when the AC Adapter is plugged in and the battery status LED is green).

  3. Repeat these steps three times.

- Always use power management features such as Advanced Power Management (APM), power modes, standby, and hibernation.

- For more detailed information about power management features Online User's Guide

Where do I get the ThinkPad device drivers for this operating system?

See the Online User's Guide for information on installing a device drivers. You can get the ThinkPad device drivers by using the ThinkPad Customization CD or the Diskette Factory. Before installing a new operating system, do the following:

- Print the software installation section of the Online User's Guide.

- Make backup diskettes of the device drivers and applications for your new operating system with the Diskette Factory. See "Using the Diskette Factory" on page 110.

- Make a Windows 98 startup diskette.

How do I use the Recovery CD to reload my factory-installed ThinkPad operating system and applications?

See "Using the Recovery CD" on page 111.

Hints, Tips and Limitations

This section provides hints, tips, and limitations.

If you are using the Intel USB camera and the system resumes from suspend mode, the USB camera is disabled. To enable it, unplug it and plug it in again.

If you want to use the scrolling or magnifying glass functions of the TrackPoint, you need to disconnect any external mouse and enable the internal TrackPoint.

The ThinkPad i Series 1400 computer supports only the Windows 98 operating system.

USB Connector Considerations

If your computer tries to enter standby mode and the request is rejected, the device in the USB connector might be disabled. If this occurs, do a hot-unplug and -plug operation for the USB device.

Using an External Condenser Microphone

The microphone-in jack supports a self-battery-powered condenser microphone which might need a battery. See the instructions which come with the microphone.

Troubleshooting Guide

If a beep sounds, a message appears, or a function-related problem occurs:

1. Find your symptom in the Troubleshooting Charts and try solving the problem. ➤ "Troubleshooting Charts" on page 90

2. If you can't solve the problem, note the error code and have the computer serviced ➤ Chapter 5, "Getting Service" on page 113

If you accidentally lose or damage software in your computer:

Recover it by using the ThinkPad Customization CD or the Recovery CD.
➤ "Recovering Lost or Damaged Software" on page 109

Troubleshooting Charts

If your computer has an error, it often displays a message or an error code, or a beep sounds when you power it on. Go through the charts and look for your problem. If you find the problem, go to the page indicated and do the specified action.

Troubleshooting Chart	Page
Error codes or screen messages	91
No error codes or screen messages	92
Input problems	93
Suspend or hibernation problems	95
LCD problems	97
Indicator problems	98
Battery problems	98
CD-ROM drive problems	99
Audio problems	100
Universal serial bus (USB) problems	100
Modem problems	101
PC Card problems	102
Printer problems	103
External display problems	104
Other option problems	106
Software problems	107
Other problems	108

Error Codes or Messages

Note: In the charts, *x* can be any character.

Problem	Action
The power-on password prompt	A power-on password is set. Type the correct password and press **Enter** to use the computer (see "Entering a Password" on page 74). If you still have a problem, have the computer serviced.
The DOS full-screen looks smaller. 640 x 480	When you use a DOS application that supports only the 640x480 resolution (VGA mode), the screen image might look slightly distorted or might appear smaller than the display size. This is to maintain compatibility with other DOS applications. This is not a defect. To expand the screen image to the same size as the actual screen, enter the BIOS Utility and enable the **Screen Expansion** parameter in the Startup Configuration menu. (The image might look slightly distorted.) See "Startup Configuration" on page 19.
The Windows 98 startup screen does not fill the screen.	**For 13.3–inch displays:**When you enable **Screen Expansion** in the Startup Configuration menu of the BIOS Utility, the Windows 98 startup screen expands but does not fill the entire screen. This is not a defect. (The image might look slightly distorted.) See "Startup Configuration" on page 19.

No Error Codes or Messages

Problem	Action
The screen is blank and you don't hear any beeps. **Note:** If you are not sure whether you hear any beeps, turn the computer off; then turn it on again, and listen again. Also check the volume control and the power indicator. If you are using an external monitor, go to "External Monitor Problems" on page 104.	Make sure that: • The battery pack is installed correctly. • The AC Adapter is connected to the computer and the power cord is plugged into a working electrical outlet. • The computer power is on. (Turn on the power switch again for confirmation.) If a power-on password is set but does not appear, the brightness control might be set to minimum brightness. Adjust the brightness. If the screen still remains blank, have the computer serviced.
The screen is blank and you hear a continuous beep, or two or more beeps.	Have the computer serviced.

Input Problems

Problem	Action
The cursor does not move after the computer awakens from one of the power management modes.	Make sure you followed the instructions in the Online User's Guide correctly if you reinstalled Windows 98.
All or some keys on the keyboard do not work.	• If the problem occurred immediately after the computer returned from hibernation mode, enter the power-on password if it set. • If an external keyboard is connected, the numeric keypad on your computer will not work. This is not a defect. • If an external numeric keypad or a mouse is connected: 1. Turn off the computer. 2. Remove the external numeric keypad or the mouse. 3. Turn on the computer and try using the keyboard again. If the keyboard problem is solved, check the connection of the external numeric keypad, external keyboard, or mouse. If you still have a problem, have the computer serviced.
The cursor drifts when the computer is turned on or after it resumes normal operation.	The cursor might drift when you are not using the TrackPoint during normal operation. This is a normal characteristic of the TrackPoint and is not a defect. Cursor drifting might occur for several seconds under the following conditions: • When the computer is turned on. • When the computer resumes normal operation. • When the TrackPoint is pressed for a long time. • When the temperature changes.
The mouse or pointing device does not work.	• Make sure that the mouse or pointing-device cable is securely connected to the computer. • Try using the TrackPoint. If the TrackPoint works, the error might be due to the mouse. • Disable the TrackPoint if you use an external mouse (see "Disabling the TrackPoint" on page 59). **Note:** See the manual supplied with the mouse for more information.
The mouse buttons do not work.	Reinstall the PS/2 TrackPoint driver. See the Online User's Guide for instructions on how to install the driver.

Troubleshooting Charts

Problem	Action
The scrolling or Magni-fying Glass function does not work.	See the General tab page in "Mouse Properties", and make sure that the PS/2 TrackPoint driver is loaded.
A number appears when you type a letter.	The numeric lock function is on. To disable it, press and hold **Shift**; then press **NumLk**.
All or some keys on the external numeric keypad do not work.	Make sure that the external numeric keypad is correctly connected to the computer.
All or some keys on the external keyboard do not work.	To use an external keyboard, you can attach it to the computer either directly or through the keyboard/mouse cable. Make sure that: • The keyboard cable is correctly connected to the computer (if the keyboard is connected directly to the computer). • The keyboard/mouse cable is correctly connected to the computer. • The keyboard cable is connected to the correct side of the keyboard/mouse cable. If these items are correct, disconnect the keyboard/mouse cable from the computer and make sure that the operation of the system keyboard is correct. If the system keyboard works, have the keyboard/mouse cable or the external keyboard serviced.
The internal numeric keypad does not work.	If you connect an external numeric keypad or an external keyboard with a numeric keypad, the internal numeric keypad is disabled. Use the external numeric keypad instead.
All or some of the Fn key functions do not work.	If Notebook Manager is active, the Fn key functions related to Display Device (**Fn+F9**, **Fn+Home** and **Fn+End**) are disabled. **Note:** The standby and hibernation Fn key functions are available on the external keyboard. Press **Ctrl+Alt+F4** and **Ctrl+Alt+F12** respectively.

Standby or Hibernation Problems

Problem	Action
The computer enters standby mode automatically.	The computer enters standby mode automatically when the processor temperature reaches a certain level. This is not a defect.
Performance degrade when the computer gets hot during use.	The processor speed might decrease under the following conditions: • Use in a hot environment. • High-powered processing that requires high-power consumption. This is not a defect.
The computer enters standby mode immediately after POST (the standby indicator is on).	Make sure that: • The battery pack is charged. • The AC Adapter is connected to the computer. • The operating temperature is within the acceptable range. Refer to Appendix A, "Features and Specifications" on page 123. If these items are correct, have the computer serviced.
The computer turns on and immediately turns off.	The battery pack power is getting low. Connect the AC Adapter to the computer, or replace the battery pack with a fully charged one.
The computer does not return from standby mode, or the standby lamp stays on and the computer does not work.	The computer automatically enters standby or hibernation mode when the battery power is exhausted. Do one of the following: 1. Connect the AC Adapter to the computer. 2. Replace the battery pack with a fully charged one; then press Fn.
The LCD is blank after resuming.	Check if an external monitor was connected before the computer entered suspend mode. **Do not disconnect the external monitor while the computer is in hibernation mode. If no external monitor is attached when the computer resumes, the LCD remains blank and output is not displayed. This restriction does not depend on the resolution value.**
Your computer does not enter standby or hibernation mode.	Check if the standby or hibernation options are set in the Power Management Properties window (**Fn+F2**). Make sure the hibernation file is created. (See "Sleep Manager" on page 30.)
The computer does not enter hibernation mode with the **Fn+F12** key combination.	Make sure the hibernation file is created. (See "Sleep Manager" on page 30.) To enter hibernation mode, stop the communication program, and then remove the PC Card or turn off power to the PC Card slot using the **Control Panel**.

Troubleshooting Charts

Problem	Action
When creating a hibernation file, Sleep Manager gives off a "Not Enough Space for Allocation" message.	Sleep Manager needs enough, contiguous hard disk drive space to create and manage the hibernation file. Make sure the hard disk drive space is sufficient for Sleep Manager's requirements. This can be viewed from the Sleep Manager main screen. If there are still problems, there might not be enough contiguous free space to create the hibernation file. Use a disk defragementation utility to solve the problem.

LCD Problems

Problem	Action

The screen is unreadable or distorted.	Make sure that:
	
	• The ThinkPad display driver is installed correctly.
	
	  1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**.
	
	  2. Double-click on **Display**.
	
	  3. Select the **Settings** tab in the "Display Properties" window.
	
	  4. Click on **Advanced...**; then click on the **Adapter** tab.
	
	    Make sure that the display driver information is correct.
	
	• The refresh rate setting is set to your display resolution and color depth by doing the following:
	
	  1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**.
	
	  2. Double-click on **Display**.
	
	    The "Display Properties" window appears.
	
	  3. Make sure the settings in the "Display Properties" window are correct.
	
	  4. Click on **OK** to close the window.

Incorrect characters appear on the screen.	Did you install the operating system or application program with the correct procedure? If they are installed and configured correctly, have the computer serviced.
The screen stays on even after you power off the computer.	Push and hold the power switch for about five seconds; then release it to turn off your computer. Turn it on again.
Missing, discolored, or bright dots appear on the screen everytime you power on your computer (TFT display model.)	This is a characteristic of TFT technology. Your computer display contains multiple thin-film transistors (TFTs). A small number of missing, discolored, or bright dots on the screen might exist all the time.

Indicator Problems

Problem	Action
The battery status indicator does not go on even though a battery pack is installed in the computer.	The over-current protection device inside the battery pack has been activated. Wait several hours and try again. If the indicator still does not go on, replace the battery pack or have the computer serviced.

Battery Problems

Problem	Action
The battery pack cannot be fully charged in 3.5 hours by the power-off charging method.	The battery pack might be over-discharged. Do the following: 1. Turn off the computer. 2. Make sure that the over-discharged battery pack is in the computer. 3. Connect the AC Adapter to the comptuer and let it charge. If the battery pack cannot be fully charged in 24 hours, use a new battery pack.
Your computer shuts down before the battery status indicator shows empty. *-or-* Your computer operates after the battery status indicator shows empty.	Repeat discharging and charging the battery pack at least three times.
The computer does not operate with a fully charged battery pack.	The over-current protective function in the battery pack might be activated. Turn off the computer and wait for several hours before you turn it back on again.

CD-ROM Problems

Problem	Action
The CD-ROM does not work.	Make sure that: • The computer power is turned on and a compact disc is in the CD-ROM drive. • The audio CD power button is turned on (the audio CD status LCD lights up). • The CD-ROM drive tray is firmly closed. • The device drivers are correctly installed.
You hear a noise from the CD-ROM drive when the CD-ROM is spin-ning.	The CD-ROM drive cover might be bent. Have the computer serviced.
The CD-ROM tray does not open even if you press the CD-ROM eject button.	Insert a pin into the CD-ROM emergency eject hole and eject the CD-ROM tray.
The compact disc cannot be read.	Make sure that: • The compact disc is not dirty. If it is, clean it with a CD-ROM cleaner kit. • The compact disc is not defective. If it is, try another compact disc. • The compact disc is placed in the tray with the label side up. • The compact disc format conforms with one of the following: – Music CD – CD-ROM or CD-ROM XA – Multisession photo CD – Video CD

Audio Problems

Problem	Action
General problems.	Problems may be due to such factors as: • The audio volume control is not adjusted to the desired level. • The audio volume in Windows is muted or not adjusted to the desired level. • The audio cable configuration is not correct for your application. • The audio cable is defective. • The audio equipment is defective.

Universal Serial Bus (USB) Problems

Problem	Action
A device connected to the USB connector does not work.	1. Make sure that the USB device is connected correctly. 2. Make sure that **USB Function Support** is enabled in the Startup Configuration menu of the BIOS Utility. See "Startup Configuration" on page 19. 3. Open the "Device Manager" window, and make sure that the USB device setup is correct, and that computer resource assignment and device driver installation are correct. **Note:** To open the "Device Manager" window, click on **Start** and move the cursor to **Settings** and click on **Control Panel**. Double-click on **System**; then click on the **Device Manager** tab in the "System Properties" window.

Modem Problems

Problem	Action
Your modem application does not work with the ThinkPad modem.	Make sure that the internal modem port is enabled by opening the "Device Manager" window and running the Modem Wizard.
	If the modem does not work correctly, see the Online User's Guide and correct the resource conflict. If the modem works correctly, set the following modem settings by doing the following:
	1. Double-click on **My Computer**, **Control Panel**, and **Modem**. The **LT Win Modem** is highlighted.
	2. Click on **Properties**, *not* **Dialing Properties**.
	3. Click on the **Connection** tab.
	4. If there is a check mark ($\sqrt{}$) in the **Wait for dial tone before dialing** box, click and remove it.
	5. Click on Advanced.
	6. If there is a check mark ($\sqrt{}$) in the **Use error control** box, click and remove it.
	7. Add a check mark ($\sqrt{}$) to the **Use flow control** box by clicking on the box and make sure that **Hardware (RTS/CTS)** is selected.
	8. Click on **OK** to close the window.
	9. Click on **OK** and return to the "Modem Properties" window.
	10. Click on **Dialing Properties** and fill in all boxes and click on either **Tone dialing** or **Pulse dialing**.
	Note: Most telephones today use tone dialing, where each button produces a different tone, instead of pulse dialing.
	11. Click on **OK**.
	12. Click on **Close** to close the window.
	13. Close all active windows.
	Run your modem application again.

PC Card Problems

Problem	Action
The PC Card shows "Ready", but it does not work correctly.	Make sure that: • The system resources reserved for the PC Card do not conflict with other system devices. • Refer to "Resolving System Resource Conflicts" in the Online User's Guide. • The resources reserved for the PC Card match the settings in the application program. • If you are using a network card, check the I/O port address, IRQ level, and memory window address.
A system resource conflict occurred when a PC Card was used.	See "Resolving System Resource Conflicts" in the Online User's Guide.
PC Card support software does not recognize your PC Card.	Make sure that: • If the PC Card is not a modem, an ATA, a Flash, or an SRAM card, you have the proper client device driver for the card. In Windows 98, the PC Card must have an INF file associated with it. • Your PC Card supports PCMCIA Release 2.0, 2.01, and 2.10. Refer to the manual that came with your PC Card. If your PC Card does not support those releases of PCMCIA, you cannot use the PC Card support software. Contact your PC Card supplier. • Your PC Card is working by following the diagnostic instructions for your PC Card, if any.
The PC Card is recognized by PC Card support software, but the "Not Ready" or "Not Configured" message is shown.	Make sure that: • If the PC Card is not a modem, an ATA, a Flash, or an SRAM card, you have the proper client device driver for the card. In Windows 98, the PC Card must have an INF file associated with it. • The resources for the PC Card are correctly reserved. Refer to "Resolving System Resource Conflicts" in the Online User's Guide.

Printer Problems

Problem	Action
The printer does not work.	Make sure that: • The parallel port is enabled. 1. Save your work and quit any program you are using. 2. Shutdown and restart your computer. 3. While the ThinkPad logo is being displayed, wait for a beep before pressing **F1** to enter the BIOS Utility. 4. Select **Onboard Devices Configuration** and press **Enter**. 5. Verify if the **Parallel Port** is enabled. 6. Save the changes and exit the BIOS Utility. • The printer is turned on and ready to print. • The printer signal cable is connected to the correct connector of your computer. If these items are correct and the printer still does not work, run the tests described in the printer manual. If the tests show that the printer is OK, have the computer serviced.

External Monitor Problems

Problem	Action
The external monitor is blank.	Do the following: 1. Connect the external monitor to another computer and make sure it works. 2. Reconnect the external monitor to your computer. 3. Press **Fn+F9**. **Note:** You can also change the display output location using the Notebook Manager: a. Start the Notebook Manager program. b. Click on **External monitor** or **Both** radio button. c. Click on **OK**. If nothing appears on the external monitor, have the computer serviced.
You cannot set a higher resolution than the present one on your external monitor.	Make sure that: • The ThinkPad display driver is installed correctly. 1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**. 2. Double-click on **Display**. 3. Select the **Settings** tab in the "Display Properties" window. 4. Click on **Advanced...**; then click on the **Adapter** tab. Make sure that the ThinkPad display driver is installed. If you are not sure that the ThinkPad display driver is installed correctly, reinstall it. • An appropriate display type or refresh rate is selected. 1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**. 2. Double-click on **Display**. 3. Make sure the settings in the "Display Properties" window are correct. 4. Click on **OK** to close the window.

Problem	Action
The screen is unread-able or distorted.	Make sure that: • The ThinkPad display driver is installed correctly. 1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**. 2. Double-click on **Display**. 3. Select the **Settings** tab in the "Display Properties" window. 4. Click on **Advanced...**; then click on the **Adapter** tab. Make sure that the ThinkPad display driver is installed. If you are not sure that the ThinkPad display driver is installed correctly, reinstall it. • The display is set correctly. 1. Click on **Start** and move the cursor to **Settings**; then click on **Control Panel**. 2. Double-click on **Display**. 3. Make sure the settings in the "Display Properties" window are correct. 4. Click on **OK** to close the window. If the settings are correct, run the tests described in the manual supplied with the external monitor. If the tests show that the external monitor is OK, have the computer serviced.
Wrong characters appear on the screen.	Did you install the operating system or application program with the correct procedure? If you did, have the external monitor serviced.

Other Option Problems

Problem	Action
An IBM option that you just installed does not work.	Make sure that: • The option is designed for your computer. • The option was installed following the instructions supplied with the option or this book. • Other installed options or cables are not loose. • There is no I/O address or interrupt level (IRQ) DMA channel conflict. To see the system resource status, double-click on Device Manager from the Control Panel. (See also "Resolving System Resource Conflicts" in the Online User's Guide). If the test program for the option did not find the problem, have the computer and option serviced.
An IBM option that used to work no longer works.	Make sure that: • The option is securely connected to your computer. • If the option came with its own test instructions, use those instructions to test the option. • There is no system resource conflict (see "Resolving System Resource Conflicts" in the Online User's Guide). If these items are correct and the test program did not find the problem, have the computer and the option serviced.
The serial port does not work.	Make sure that the serial port is enabled by doing the following: 1. Save your work and quit any program you are using. 2. Shutdown and restart your computer. 3. While the ThinkPad logo is being displayed, wait for a beep before pressing **F1** to enter the BIOS Utility. 4. Select **Onboard Devices Configuration** and press **Enter**. 5. Verify if the **Serial Port** is enabled. 6. Save the changes and exit the BIOS Utility.

Software Problems

Problem	Action
An application does not run correctly.	Check the following to make sure that the problem is not being caused by the application: • Your computer has the minimum required memory to run the application. Refer to the manuals supplied with the application. • The application is designed to operate with the Windows 98 operating system. • Other applications run correctly on your computer. • The necessary device drivers are installed. ➡ Online User's Guide • The application works OK when it is run on some other computer. If an error message appears when you are using the application program, refer to the manuals supplied with the application.If these items are correct and you still have a problem, contact your place of purchase or the service representative for help.

Other Problems

Problem	Action
The computer locks or does not accept any input.	• Push and hold the power switch for about five seconds, then release it to turn off the computer. Restart the computer.
The computer does not turn off with the power switch.	If the standby indicator is on and you are working under battery power, change the battery to a fully charged one or change your power source to ac power. If you still have a problem, push and hold the power switch for about five seconds, then release it to turn off the computer. Restart the computer.
The computer does not start from a diskette.	Make sure that the startup sequence in the BIOS Utility is set so that the computer starts up from the diskette drive (see "Startup Configuration" on page 19).
Performance degrades when the computer gets hot during use.	The processor speed might decrease under the following conditions: • Use in a hot environment • High-powered processing that requires high-power consumption This is not a defect.

Recovering Lost or Damaged Software

This section describes how to recover lost or damaged software. The following table shows what is needed to recover your system.

Problem	Tools Provided	For More Information
You need to recover a lost or damaged device driver.	Use the ThinkPad Customization CD. —or—	See "Using the ThinkPad Customization CD" for general information. The CD-ROM also contains online help for detailed instructions.
	Use the Diskette Factory on your hard disk drive.	See "Using the Diskette Factory" on page 110 for general information about using Diskette Factory.
You need to recover (reinstall) a lost or damaged software application.	Use the ThinkPad Customization CD. —or—	See "Using the ThinkPad Customization CD" for general information. The CD-ROM also contains online help for detailed instructions.
	Use the Diskette Factory on your hard disk drive. **Note:** Some applications are not supported in Diskette Factory.	See "Using the Diskette Factory" on page 110 for general information about using Diskette Factory.
You need to recover your entire hard disk.	Use the Recovery CD.	See "Using the Recovery CD" on page 111 for general information.

Using the ThinkPad Customization CD

The ThinkPad Customization CD is provided for your installation convenience. If you need to reinstall a software application or a hardware device driver, put the ThinkPad Customization CD in your CD-ROM drive. The menu of the features appears automatically.

Note: The ThinkPad Customization CD is compatible with Internet Explorer Version 4.0 or later. Some functions are available in other Web browsers. See the instructions printed on the CD label for more information.

The following features are included:

- **Getting Started**

  Use this page for first-time setup, such as registration.

- **System Customization**

  Use this page for doing the following:

  - Reinstalling a software application for Windows 98

  - Reinstalling a hardware device driver for Windows 98

  - Installing all hardware device drivers when installing Windows 98

- **News and Updates**

  This page has all of the latest tools and links to the IBM Web site for system information, service and support information, and other information.

- **Online Library**

  In case you do not have the Online User's Guide on your hard disk drive, you always have a copy on your ThinkPad Customization CD.

- **Using the ThinkPad Customization CD**

  This page contains an overview of CD-ROM functions.

Using the Diskette Factory

To recover a particular device driver or utility program, create the backup diskettes for it with the Diskette Factory; then reinstall it.

To create the backup diskettes, do the following:

1. Click on **Start**.

2. Move the cursor to **Programs** and **ThinkPad i Series**; then click on **Diskette Factory**.

3. Click on the tab at the top corresponding to the operating system you are using.

4. Click on the diskette group for the backup copy that you want to make.

Notes:

    a. You can select more than one group by clicking while pressing **Ctrl**.

    b. The number of the diskettes required is shown beside the diskette group. You do not need to use a blank diskette; the Diskette Factory prompts you to reformat diskettes that are not blank.

5. Click on **Build**.

6. Follow the instructions on the screen.

    For details on how to install software ⇒ "Advanced" in the Online User's Guide.

Using the Recovery CD

You can restore the contents of your hard disk to what it was at the time of purchase.

Attention: This recovery program deletes all personal data and your customized configuration settings. It resets your computer to most of the factory-shipped default values. Be sure to back up your personal files before you use this CD.

The Recovery CD consists the original preinstalled image.

The recovery process might take up to 2 hours.

Your computer supports startable CDs. To use the Recovery CD, do as follows:

1. Insert the Recovery CD into the CD-ROM drive.

2. Power off the computer; then turn on the computer.

    Note: Make sure that "Boot from CD-ROM" is enabled. See "Startup Configuration" on page 19.

3. Follow the instructions on the screen.

4. When a completion message appears, remove the Recovery CD from the CD-ROM drive.

5. Restart the computer.

Recovering Lost or Damaged Software

The computer restarts with the preinstalled configuration.

Chapter 5. Getting Service

> **Preparations**
>
> If you need further assistance, you can call your IBM reseller or IBM marketing representative.
>
> You will need to know the following information when requesting repair service:
>
> - Identification number of your computer
> - Options installed in your system
>
>   **Note:** Use the record sheet on "Option List" on page 114.
>
> - Error message or problem
>
>   **Note:** Error messages can help identify which service action is required and help the service representative provide quick and efficient service.
>
>   Use the record sheet on "Problem Recording Sheet" on page 115.

> **About Your Warranty**
>
> During the warranty period, you might be responsible for repair costs if the product damage was due to misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance.
>
> For full information on product warranties, see Appendix B, "Product Warranties and Notices" on page 129.

For your convenience, write the service phone numbers here:

_____

_____

Information on Your Computer

Option List

□ DIMM   □ PC Cards

____MB   _____

____MB   _____
□ _____GB Hard Disk Drive   □ Battery Pack

Identification Numbers

The serial number label is on the bottom of your computer. Write down the machine type and serial number (S/N) in the following box.

IBM Product Name	ThinkPad i Series 1400
Machine Type	2611-_____
Serial Number	_____

Serial number label
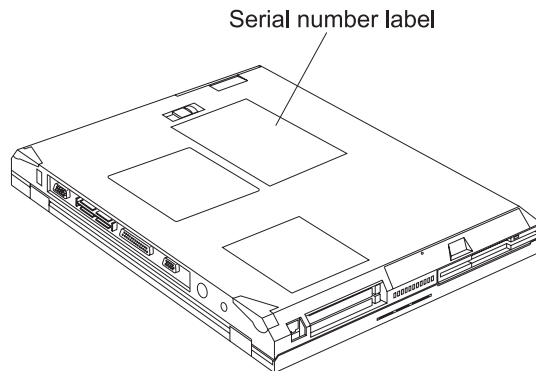
Problem Recording Sheet

- Computer information:

    Machine type:_____

    Serial number:_____

    Date of purchase:___/___/___

- Type of problem:

    ☐ Continuous problem   ☐ Intermittent problem

- Error code:

- The operating system and its version number, if available:

    ☐ Windows 98 Version_____

- Application programs running at the time of the problem:

    _____

    _____

- Problem symptom:

    Describe the problem more specifically:

    _____

    _____

    _____

- Can the problem be reproduced?

    ☐ Yes   ☐ No

    If yes, describe how it can be reproduced:

    _____

    _____

Customer Support and Service

Purchasing an IBM PC hardware product entitles you to receive support and services during the limited warranty period. If you need additional support and services, a wide variety of extended solutions that addresses most needs are available for purchase.

Help by Telephone

You can get support and information by telephone during the limited warranty period at no additional charge, through the IBM PC Support Line. Experienced technical-support representatives will be on hand to assist you in answering any questions you might have, such as:

- How to set up your computer

- How to install and set up your IBM options purchased directly from IBM or through an IBM reseller

- How to use the 30-day support for the preloaded operating system

- How to get service

Please have the following information ready when you call:

- Serial number of your computer and proof of purchase

- Description of the problem

- Exact wording of the error message

- Hardware and software configuration information for your system

If possible, be at your computer when you call.

- In the U.S. and Puerto Rico, call 1-800-772-2227.

- In Canada, call 1-800-565-3344.

These lines are available 24 hours a day, 7 days a week. The answering technical-support representative can also fax or mail you technical or product information, such as:

- Sales information

- Product brochures

- Locations of IBM resellers

- Services available from IBM

ThinkPad EasyServ

ThinkPad EasyServ is a courier repair service for IBM mobile products whereby your ThinkPad computer will be picked up, sent to IBM for repair, and then returned to the location of your choice. This service is available at no additional charge during the limited warranty period. Most computers can be repaired the day that it arrives at the IBM repair location.

Support personnel first try to solve your problem over the phone. If they are unsuccessful, you can arrange for EasyServ service by calling the PC Support Line.

If possible, you should use the original ThinkPad shipping materials that your computer came in, for re-sending it to IBM. If the box is not available, the courier will deliver a shipping carton and will return later to pick it up. This service is available only in the U.S. and Canada.

Getting Help Around the World

If you make frequent overseas trips or you are residing abroad, you can register with the International Warranty Service Office. The office will issue an International Warranty Service Certificate, which you can use wherever IBM or IBM resellers sell and service IBM PC products.

For more information on registering with the International Warranty Service Office, call 1-800-497-7426 in the U.S. or Canada.

Fax Information

In the U.S. and Canada, if you have a touch-tone telephone and access to a fax machine, you can receive marketing and technical information on such topics as computer hardware, operating systems, and local area networks (LANs) by fax. You can call the IBM PC Company Automated Fax System 24 hours a day, 7 days a week. Follow the recorded instructions, and the information that you request will be sent to your fax machine.

To access the IBM PC Company Automated Fax System, call:

- In the U.S., 1-800-426-3395.

- In Canada, 1-800-465-3299.

Electronic Support Services

If you have a modem, you can access such public information ser-
vices as the electronic bulletin boards and public messaging areas,
electronic conferences, and searchable databases available in
several of the most popular online information services.

Bulletin boards and online services contain information on many
topics, such as:

- PC user groups

- PC questions and answers

- Problem solving

- Technical information

- Hardware and software configurations

- Networking

The IBM PC Company Bulletin Board System (BBS) can be reached
24 hours a day, 7 days a week. Modem speeds of up to 14,400 baud
are supported. Long distance telephone charges may apply.

To access the PC Company BBS, call:

- In the U.S., 1-919-517-0001.

- In Canada, call the center closest to you:

  – 905-316-4255 (Markham; Ontario)

  – 514-938-3022 (Montreal)

  – 416-492-1823 (Toronto)

  – 604-664-6466 (Vancouver)

Commercial online services that contain information about IBM pro-
ducts are:

- CompuServe**

Use the **GO** word **ThinkPad**.

- PRODIGY**

  Use the **Jump** command; type `IBM` and select **PC Product Support**.

- America Online**

  Use the **Go** to keyword **IBM**.

You can also contact us on the Internet for answers to your technical support questions. If you link to our support home page, you can search for technical tips, download update drivers, and find out about many other things. You can visit the site at the following URL:

http://www.pc.ibm.com/thinkpad

Personalized web-based site PC support provides PC users easy access to online support, including personalized IBM website tailored to their machine type, computing environment, and individual inter-ests such as business applications or games. Customers profile once with IBM and are thereafter greeted by name and presented targeted information selected specifically to meet their particular needs. For example, a corporate ThinkPad user might receive information on Microsoft Windows NT and remote connectivity. IBM customers can also elect to receive proactive e-mail, alerting them to time-saving hints and tips and product-specific update such as modem speed and BIOS files. Interactive web-based forums are monitored around the clock by IBM specialists, complementing its support on all the major internet service providers. You can set up your profile at:

http://www.pc.ibm.com/support

Purchasing Additional Services

During and after the limited warranty period, you can purchase additional services, such as:

- Support for IBM and non-IBM hardware, operating systems, and application programs
- Network setup and configuration
- Upgraded or extended hardware repair services
- Custom installation

The availability of the service and its name might vary by country.

Enhanced PC Support Line

Enhanced PC Support is available for desktop and mobile IBM computers that are not connected to a network. Technical support is provided for IBM computers and IBM or non-IBM options, operating systems, and application programs on the supported products list. This service includes technical support for the following:

- Installing and configuring your out-of-warranty IBM computer
- Installing and configuring non-IBM options in IBM computers
- Assistance with the preloaded operating system
- Using selected application software and games
- Tuning performance, such as memory management
- Installing device drivers remotely
- Setting up and using multimedia devices
- Identifying system problems
- Interpreting documentation

You can purchase this service for a single incident or multiple incidents. For more information about purchasing Enhanced PC Support, see "Ordering Support Line Services" on page 121.

Client Support Line

Client support is available to provide assistance with the following:

- Installation and configuration of clients

- Identification of system problems related to the client in a network environment

- Assistance with client network interface cards and options

You can purchase this service on a one-time basis (for a single incident).

Network and Server Support Line

Network and Server Support includes all the features of the Enhanced PC Support Line and is available for simple or complex networks made up of IBM workstations and servers using major network operating systems. This line also supports many popular non-IBM adapters and network interface cards. This service includes technical support for: Installing and configuring client workstations and servers Identifying system problems and correcting problems on the client or the server Using IBM and non-IBM network operating systems Interpreting documentation You can purchase this service for a single incident or for multiple incidents. For more information about purchasing Network and Server Support, see "Ordering Support Line Services."

Ordering Support Line Services

The Enhanced PC Support Line, Client Support Line, and Network and Server Support Line services are available for products on the Supported Products list.

To receive a Supported Products list:

- In the U.S.:

  - Call 1-800-772-2227.

  - Select the automated fax system option.

  - Select the service for which you would like a Supported Products list:

- For the Enhanced PC Support Line, select document 11682.

- For the Network and Server Support Line, select document 11683.

- In Canada

  – Call 1-800-465-7999 or 1-800-465-7999.

- In other countries, contact your IBM reseller or IBM marketing representative.

For more information on how to purchase the Support Line Services:

- In the U.S.: call 1-800-772-2227.

- In Canada: call 1-800-465-7999.

- In other countries, contact your IBM reseller or IBM marketing representative.

Warranty and Repair Services

You can extend your period of ThinkPad EasyServ warranty service.

- In the U.S., for more information on warranty extensions, call 1–888–426–4343.

  For more information on service offerings in the U.S. only, please refer to the following web page:

  http://www.pc.ibm.com/us/infobrf/ibserv1.html#info

- In Canada, for more information on warranty extensions: call 1-800-465-7999.

- In other countries, contact your IBM reseller or IBM marketing representative.

Appendix A. Features and Specifications

This appendix describes the features and specifications for the computer.

Features

Processor

Intel® Mobile Pentium™ processor with MMX™ technology

Memory

Base: 32MB or 64MB

Option: Max. 256 MB

Storage devices

2.5–inch hard disk drive

Display

The color display uses TFT technology

1024–by–768 or 800–by–600 resolution on the LCD

Up to 1280 by 1024 resolution on the external monitor

Brightness control

Keyboard

84–key, 85–key, or 89–key

TrackPoint

Fn key function

Windows keys

Internal diskette drive

To get the best performance from your diskette drive, use high-quality diskettes (such as IBM diskettes) that meet or exceed the following standards:

1–MB, 3.5–inch, unformatted diskette:

- ANSI (American National Standards Institute) X3.137

- ISO (International Standards Organization) 8860

- ECMA (European Computer Manufacturers Association) 100

2–MB, 3.5–inch, unformatted diskette:

- ANSI X3.171
- ISO 9529
- ECMA 125

Internal CD-ROM drive

20X max. speed

External interface

Serial connector (EIA-RS232D)

Parallel connector (Centronics)

External-input-device connector

External-monitor connector

System-expansion connector

PC Card slots (two Type I or Type II PC Cards, or one Type III PC Card)

Headphone jack

Microphone jack (supports a self-battery-powered condenser microphone)

Stereo line-in jack

Universal Serial Bus (USB) connector

Telephone connector

Specifications

Size

- Width: 332 mm (13.1 in.)
- Depth: 258 mm (10.1 in.)
- Height: 47 mm (1.85 in.)

Environment

Temperature (at altitudes less than 2438 m 8000 ft."):

- Operating with no diskette: 5°C to 35°C (41°F to 95°F)
- Operating with a diskette: 10°C to 35°C (50°F to 95°F)
- Nonoperating: -20°C to 60°C (-4°F to 140°F)

Note: When you charge the battery pack, its temperature must be at least 10°C (50°F).

Relative humidity:

- Operating with no diskette: 8% to 95%
- Operating with a diskette: 8% to 80%

Maximum altitude: 3048 m (10,000 ft.) in unpressurized conditions

- Maximum temperature at 3048 m (10,000 ft.): 31.3°C (88°F)

Heat output

Approximately 48 Kcal per hour

Electrical (AC Adapter)

Sine-wave input, at 50 to 60 Hz is required

The input rating of the AC Adapter: 100–240 V ac, 50/60 Hz

Nickel Metal Hydride battery pack

Nominal voltage: 9.6 V dc

Capacity: 3.5 AH

IBM Power Cords

IBM power cords for a specific country are usually available only in that country:

- For 2–pin power cords:

IBM Power Cord Part Number	Used in These Countries
13H5273	Japan

- For 3–pin power cords:

  Note: The grounded adapter is required for full MPRII compliance.

IBM Power Cord Part Number	Used in These Countries
76H3514	Australia, New Zealand
76H3516	Canada, Thailand, U.S.
76H3518	Europe
76H3520	Denmark
76H3522	India, South Africa
76H3524	United Kingdom
76H3526	Japan
76H3528	Switzerland
76H3530	Italy
76H3532	Israel
76H3535	Korea

Appendix B. Product Warranties and Notices

Statement of Limited Warranty

The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you originally purchase for your use, and not for resale, from IBM or an IBM authorized reseller. The term "Machine" means an IBM machine, its features conversions, upgrades, elements, or accessories, or any combination of them. Machines are subject to these terms only if purchased in the United States or Puerto Rico, or Canada, and located in the country of purchase. If you have any questions, contact IBM or your reseller.

Machine: IBM ThinkPad i Series 1400 and the Battery Pack

Warranty Period*: One Year

*Elements and accessories are warranted for three months. Contact your place of purchase for warranty service information.

Production Status

Each Machine is manufactured from new parts, or new and serviceable used parts (which perform like new parts). In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's warranty terms apply.

The IBM Warranty

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. IBM calculates the expiration of the warranty period from the Machine's Date of installation. The date on your receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period, IBM or your reseller will provide warranty service under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine. IBM or your reseller will specify the type of service.

For a feature, conversion, or upgrade, IBM or your reseller may require that the Machine on which it is installed be 1) the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Some of these transactions (called "Net-Priced" transactions) may include additional parts and associated replacement parts that are provided on an exchange basis. All removed parts become the property of IBM and must be returned to IBM.

Replacement parts assume the remaining warranty of the parts they replace.

If a Machine does not function as warranted during the warranty period, IBM or your reseller will repair or replace it (with a Machine that is at least functionally equivalent) without charge. If IBM or your reseller is unable to do so, you may return it to your place of purchase and your money will be refunded.

If you transfer a Machine to another user, warranty service is available to that user for the remainder of the warranty period. You should give your proof of purchase and this Statement to that user.

Warranty Service

To obtain warranty service for the Machine, you should contact your reseller or call IBM. In the United States, call IBM at **1-800-772-2227**. In Canada, call IBM at **1-800-565-3344**. You may be required to present proof of purchase.

Depending on the Machine, the service may be 1) a "Repair" service at your location (called "On-site") or at one of IBM's or a reseller's service locations (called "Carry-in") or 2) an "Exchange" service, either On-site or Carry-in.

When a type of service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. The replacement may not be new, but

will be in good working order and at least functionally equivalent to the item replaced.

It is your responsibility to:

1. obtain authorization from the owner (for example, your lessor) to have IBM or your reseller service a Machine that you do not own;

2. where applicable, before service is provided —

   a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provide,

   b. secure all programs, data, and funds contained in a Machine,

   c. inform IBM or your reseller of changes in a Machine's location, and

   d. for a Machine with exchange service, remove all features, parts, options, alterations, and attachments not under warranty service. Also, the Machine must be free of any legal obligations or restrictions that prevent its exchange;

3. be responsible for loss of, or damage to, a Machine in transit when you are responsible for the transportation charges.

Extent of Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless IBM specifies otherwise, IBM provides non-IBM machines on an "AS IS" basis. However, non-IBM manufacturers may provide their own warranties to you.

Misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, removal of product labels or parts identification labels, or failure caused by a product for which IBM is not responsible may void the warranties.

THESE WARRANTIES REPLACE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. HOWEVER, SOME LAWS DO

NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES. IF THESE LAWS APPLY, THEN ALL EXPRESS AND IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

In Canada, warranties include both warranties and conditions.

Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part (including fundamental breach) or other liability (including negligence and misrepresentation), you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages, IBM is liable only for:

1. bodily injury (including death), and damage to real property and tangible personal property; and

2. the amount of any other actual loss or damage, up to the greater of $100,000 or the charge for the Machine that is the subject of the claim.

Under no circumstances is IBM liable for any of the following:

1. third-party claims against you for losses or damages (other than those under the first item listed above);

2. loss of, or damage to, your records or data; or

3. economic consequential damages (including lost profits or savings) or incidental damages, even if IBM is informed of their possibility.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the user's responsibility.

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PS/2
ThinkPad
TrackPoint IV

Microsoft, Windows, Windows NT, and the Windows 95 flag logo are trademarks or registered trademarks of Microsoft Corporation.

Pentium® and MMX™ are trademarks or registered trademarks of Intel Corporation in the U.S. and other countries.

Other company, product, and service names, which may be denoted by a double asterisk (**), may be trademarks or service marks of others.

Electronic Emission Notices

Federal Communications Commission (FCC) Statement
ThinkPad i Series 1400

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful 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 on a circuit different from that to which the receiver is connected.

- Consult an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment.

Unauthorized changes or modifications could void the user's authority to operate the equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible party:

International Business Machines Corporation
New Orchard Road
Armonk, NY 10504
Telephone 1-919-543-2193

Canadian Department of Communications Compliance Statement

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

Avis de conformité aux normes du ministère des Communications du Canada

Cet équipement ne depase pas les limites de Classe B d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Règlement sur le brouillage radioélectrique établi par le ministerè des Communications du Canada.

European Community Directive Conformance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

A declaration of Conformity with the requirements of the Directive has been signed by IBM United Kingdom Limited, PO BOX 30 Spango Valley Greenock Scotland PA160AH.

This product satisfies the Class B limits of EN 55022.

Telecommunication Notice

Federal Communications Communication (FCC) and Telephone Company Requirements (Part 68 of the FCC Rules)

1. The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent, and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business,

other entity, or individual. In order to program this information into your computer, you should be sure to follow the installation instructions for your fax software package.

2. The built-in modem is built into the ThinkPad computer. It complies with Part 68 of the FCC Rules. A label is affixed to the bottom of the computer that contains, among other things, the FCC registration number, USOC, and Ringer Equivalency Number (REN) for this equipment. If these numbers are requested, look at the label and provide this information to your telephone company.

3. The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your number is called. IN most, but not all, areas, the sum of the RENs of all devices should not exceed five (5.0). To be certain of the number of devices you may connect to you line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.

4. If the built-in modem causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.

5. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.

6. If you experience trouble with this built-in modem, contact your IBM Authorized Seller, or the IBM Corporation, 500 Columbus Avenue, Thornwood, NY 10594, 1-800-772-2227, for repair/warranty information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected, or until you are sure the equipment is not malfunctioning.

7. No customer repairs are possible to the modem. If you experience trouble with this equipment, contact your Authorized Seller or the IBM Corporation for information.

8. The modem may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.

9. When ordering network interface (NI) service from the Local Exchange Carrier, specify service arrangement USOC RJ11C.

Fax Branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your fax machine, follow the setup instructions for **RingCentral****.

Notice for Australia

The following notice applies when using the telephony functions:

FOR SAFETY REASONS, ONLY CONNECT AUSTEL PERMITTED OR CERTIFIED EQUIPMENT.

Industry Canada Requirements

Notice

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

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommuni-

cations company. The equipment must also be installed using an acceptable method of communication. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs of alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The **Ringer Equivalent Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Number of all the devices does not exceed 5.

Avis

L'etiquette dus ministère l'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qui'l est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en

suivant une méthode acceptée de raccordement. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique interne). L'abonné ne doit pas oublier qu'il est possibile que la conformité aux conditions énoncées ci-dessus n'empechent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus par les tarifs paticuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demader à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement

L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à électricien, selon le cas.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 5.

Notices

Glossary

This glossary includes terms and definitions from the *IBM Dictionary of Computing* (New York: McGraw-Hill, 1994)

ac (AC).   Alternating current.

ac power.   Power that is supplied to the computer through an electrical outlet.

Advanced Power Management (APM). A facility consisting of one or more layers of software that support power management in computers with power manageable hardware. The APM software interface allows applications, operating systems, device drivers, and the APM BIOS to work together to reduce power consumption, without reducing system performance.

ANSI.   American National Standards Institute.

APM.   Advanced Power Management.

application program.   A program that performs specific tasks on your computer, such as word processing or creating spreadsheets.

ASCII.   American National Standard Code for Information Interchange.

ATA PC Card.   A PC Card with an AT attachment hard disk drive interface such as a storage device PC Card.

AUTOEXEC.BAT.   A file that contains a startup procedure of DOS. Each time you start your system, DOS performs the commands that are stored in this file.

backup copy.   A copy, usually of a file or group of files, that is kept in case the original file or files are unintentionally changed or destroyed.

batch.   A process method in which a program or programs records with little or no operator action.

bay.   The ThinkPad i Series 1400 compartment for installing device modules.

BIOS (Basic Input/Output System). Microcode that contains such basic hardware operations as interactions with diskette drives, hard disk drives, and the keyboard.

bitmap graphics.   (1) A form of graphics in which all points on the display are directly addressable, (2) In multimedia applications, a form of graphics in an area of computer memory or storage that can be displayed as an image.

boot.   To prepare a computer system for operation by loading an operating system.

bps.   Bits per second. In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

bus.   A facility for transferring data between several devices located between two end points, only one device being able to transmit at a given moment.

cache memory.   A special memory, smaller and faster than main memory, that is used to hold a copy of instructions and data in main memory that is likely to be needed next by the processor, and that have been obtained automatically from main memory.

CD.   Compact disc.

CD-I.   Compact disc-interactive.

CD-ROM. Compact disc read-only memory.

cold docking. Docking the computer to the docking station with the computer is powered off.

combination keys. Keys that have specific functions when you hold them down at the same time.

CONFIG.SYS. A file that contains a group of commands to load installable device drivers and reserve space in system memory for information processing. This file is referred to by DOS during system startup.

configuration. (1) The manner in which hardware and software of an information processing system are organized and interconnected, (2) The physical and logical arrangement of devices and programs that make up a data processing system, (3) The devices and programs that make up a system, subsystem, or network.

CRT. Cathode ray tube display.

device driver. (1) A file that contains the code needed to use an attached device. Operating system loads device drivers for screens. (2) A program that enables a computer to communicate with a specific peripheral device—for example, a printer, a video disc player, or a CD drive. (3) A collection of subroutines that control the interface between I/O device adapters and processors.

DIMM. Dual inline memory module.

directory. A type of file containing the names and controlling information for other files or other directories.

Diskette Factory. The preload program for creating the installation diskettes of the device drivers and applications.

DMA. Direct memory access. The transfer of data between memory and input/output units without processor intervention.

double-click. To press and release a mouse button twice within a time frame defined by the user, without moving the pointer off the choice.

DRAM. Dynamic random access memory.

DSTN. Dual-scan, super-twisted nematic.

DSP. Digital signal processor.

ECP. Extended Capability Port.

EDO DRAM. Enhanced data output dynamic random access memory.

EGA. Enhanced graphics adapter.

EIA. Electronics Industries Association.

EIA-232D. An EIA interface standard that defines the physical, electronic, and functional characteristics of an interface line that connects a communication device and associated workstation. It uses a 25-pin connector and an unbalanced line voltage.

EMS. Expanded memory specification.

FAQ. Frequently asked questions.

fax. (1) Facsimile machine. (2) A transmitted document from a facsimile machine.

FDD. Floppy disk drive.

fixed disk. In personal computing, fixed disk is synonymous with hard disk.

Flash memory. Electrically rewritable storage.

folder.   A file used to store and organize documents.

fuel gauge.   An indicator on the screen that constantly shows the current power status of the battery pack.

HDD.   Hard disk drive.

HHR.   Half-horizontal resolution.

hibernation mode.   One of the power-saving methods that stores data and applications running in the computer's memory on the hard disk. During hibernation, the computer is automatically turned off to save power. When power is turned on again, the computer imme-diately restores the same data and appli-cations as when hibernation mode started, without restarting the operating system.

high-performance mode.   A method of increasing the access time of video mem-ories for DSTN LCDs, to produce high-quality video on an external monitor (CRT).

high-resolution mode.   Video resol-utions that are greater than 640 x 480 pels.

HPA.   High performance addressing.

Hot docking.   Dock the computer to the docking station with the computer is powered on.

icon.   A graphic symbol, displayed on a screen, that a user can point to with a pointing device such as a TrackPoint or mouse to select a particular function or software application.

IDE.   Integrated device electronics.

IR.   Infrared.

IRQ.   Interrupt request.

ISA.   Industry standard architecture.

ISO.   International Organization for Standardization.

JEIDA.   Japan Electronics Industry Development Association.

kilobyte (KB).   1024 bytes.

LAN.   Local area network.

LCD.   Liquid crystal display.

LPT1 or LPT2.   The name you can assign a parallel port to specify its address. See also parallel port.

mAh.   Milliampere hours.

MCI.   Media Control Interface.

megabyte (MB).   1024 kilobytes. About 1 million bytes.

memory.   Often referred to as random-access memory (RAM), measured in kilo-bytes (KB) or megabytes (MB) of information.

MHz.   Megahertz.

microcode.   One or more microin-structions used in a product as an alter-native to hard-wired circuitry to implement functions of a processor or other system component.

MIDI.   Musical Instrument Digital Inter-face.

modem.   A device that connects your computer to a telephone line, allowing it to communicate with another computer at another location.

parallel port.   A port used to attach such devices as dot-matrix printers and input/output units; it transmits data 1 byte at a time.

partial suspend mode.   A kind of suspend mode where only a part of the system components use power.

parity check.   A redundancy check by which a recalculated parity bit is compared with the pregiven parity bit.

password.   A series of letters or numbers that you designated to restrict access to your computer.

PC Card.   A card that is based on the PCMCIA standard.

PCMCIA.   Personal Computer Memory Card International Association.

pel.   Picture element.

picture element.   In computer graphics, the smallest element of a display surface that can be independently assigned color and intensity.

pixel.   Picture element.

pointing device.   An instrument, such as a mouse, TrackPoint, or joystick, that is used to move a pointer on the screen.

pop-up menu.   On the display screen, a menu that emerges in an upward direction from a particular point or line on a display screen.

port replicator.   The option attached to the ThinkPad and expands the capabilities of the ThinkPad, such as additional PC Card slots and ports.

POST.   Power-on self-test.

power mode.   The ThinkPad has three battery operation power modes, such as maximum performance, maximum battery life, and customized.

prompt.   A visual or audible message sent by a program to request the user's response.

PSTN.   Public-switched telephone network.

pull-down menu.   On the display screen, a menu that emerges in an downward direction from a particular point or line at or near the top of the screen.

reboot.   To restart all operations of the computer as if the power were just turned on.

resume.   To begin computer operations again from standby mode.

ROM.   Read-only memory.

SDRAM.   Static dynamic random access memory.

serial port.   A port used to attach such devices as display devices, letter-quality printers, modems, plotters, and such pointing devices as light pens and mice; it transmits data 1 bit at a time.

standby mode.   A kind of suspend mode where only a part of the system components use power.

STN.   Super-twisted nematic.

suspend.   To stop all operations of the computer to reduce power drain and restrict access to the files.

SVGA.   Super video graphics adapter, a video mode that produces up to 1024-by-768 resolution.

TFT.   Thin-film transistor.

TSRs.   Terminate-and-stay-resident programs, memory-resident programs that are loaded into memory and stay there so you can conveniently access them whenever you need to.

USB.   Universal serial bus.

vertical expansion. A video display technique in character- display mode to fit video images on the whole LCD screen by adjusting the number of character dots vertically.

VESA. Video Electronics Standards Association.

VGA. Video graphics adapter, a video mode that produces up to 640-by-480 resolution.

VSYNC. Vertical synchronization frequency.

warm docking. Dock the computer to the docking station with the computer in suspend or hibernation mode.

XMS. Extended memory specification.

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