# IBM

# ThinkPad®X40 Series
# Service and Troubleshooting Guide

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> **Note**
>
> Before using this information and the product it supports, be sure to read the general information under "Important safety information" on page v, Appendix A, "Wireless related information," on page 45, Appendix B, "Warranty information," on page 49, and Appendix D, "Notices," on page 77.

# Contents

# Important safety information

This information can help you safely use your IBM® personal computer. Follow and retain all information included with your IBM computer. The information in this document does not alter the terms of your purchase agreement or the IBM Statement of Limited Warranty.

Customer safety is important to IBM. Our products are developed to be safe and effective. However, personal computers are electronic devices. Power cords, power adapters, and other features can create potential safety risks that can result in physical injury or property damage, especially if misused. To reduce these risks, follow the instructions included with your product, observe all warnings on the product and in the operating instructions, and review the information included in this document carefully. By carefully following the information contained in this document and provided with your product, you can help protect yourself from hazards and create a safer computer work environment.

**Note:** This information includes references to power adapters and batteries. In addition to mobile personal computers, IBM ships some products (such as speakers or monitors) with external power adapters. If you have such a product, this information applies to your product. In addition, your computer product may contain a coin-sized internal battery that provides power to your system clock even when the machine is unplugged, so the battery safety information applies to all computers.

## Conditions that require immediate action

**Products can become damaged due to misuse or neglect. Some product damage is serious enough that the product should not be used again until it has been inspected and, if necessary, repaired by an authorized servicer.**

**As with any electronic device, pay close attention to the product when it is turned on. On very rare occasions, you might notice an odor or see a puff of smoke or sparks vent from your machine. Or you might hear sounds like popping, cracking or hissing. These conditions might merely mean that an internal electronic component has failed in a safe and controlled manner. Or, they might indicate a potential safety issue. However, do not take risks or attempt to diagnose the situation yourself.**

**Frequently inspect your computer and its components for damage or wear or signs of danger. If you have any question about the condition of a component, do not use the product. Contact the IBM Support Center or the**

**product manufacturer for instructions on how to inspect the product and have it repaired, if necessary. The telephone numbers for your IBM Support Center location are located in the Telephone numbers section of this guide.**

**In the unlikely event that you notice any of the conditions listed below, or if you have any safety concerns with your product, stop using the product and unplug it from the power source and telecommunication lines until you can speak to the IBM Support Center for further guidance.**

- Power cords, plugs, power adapters, extension cords, surge protectors, or power supplies that are cracked, broken or damaged.
- Signs of overheating, smoke, sparks or fire.
- Damage to a battery (such as cracks, dents, creases), discharge from a battery, or a buildup of foreign substances on the battery.
- A cracking, hissing or popping sound, or strong odor that comes from the product.
- Signs that liquid has been spilled or an object has fallen onto the computer product, the power cord or power adapter.
- The computer product, the power cord or power adapter has been exposed to water.
- The product has been dropped or damaged in any way.
- The product does not operate normally when you follow the operating instructions.

**Note:** If you notice these conditions with a non-IBM product (such as an extension cord), stop using that product until you can contact the product manufacturer for further instructions, or until you get a suitable replacement.

## General safety guidelines

Always observe the following precautions to reduce the risk of injury and property damage.

### Service

Do not attempt to service a product yourself unless instructed to do so by the IBM Support Center. Use only an IBM authorized service provider who is approved to repair your particular product.

**Note:** Some parts can be upgraded or replaced by the customer. These parts are referred to as Customer Replaceable Units, or CRUs. IBM expressly identifies CRUs as such, and provides documentation with instructions when it is appropriate for customers to replace those parts. You must closely follow all instructions when performing such replacements. Always make sure that the power is turned off and that the product is unplugged from any power

source before you attempt the replacement. If you have any questions or concerns, contact the IBM Support Center.

## Power cords and power adapters

Use only the power cords and power adapters supplied by the product manufacturer. The power cord and power adapter are intended for use with this product only. They should never be used with any other product.

Never wrap a power cord around the power adapter or other object. Doing so can stress the cord in ways that can cause the cord to fray, crack or crimp. This can present a safety hazard.

Always route power cords so that they will not be walked on, tripped over, or pinched by objects.

Protect the cord and power adapters from liquids. For instance, do not leave your cord or power adapter near sinks, tubs, toilets, or on floors that are cleaned with liquid cleansers. Liquids can cause a short circuit, particularly if the cord or power adapter has been stressed by misuse. Liquids can also cause gradual corrosion of the power cord terminals and/or the connector terminals on the adapter which can eventually result in overheating.

Always connect power cords and signal cables in the correct order and ensure that all power cord connectors are securely and completely plugged into receptacles.

Do not use any power adapter that shows corrosion at the ac input pins and/or shows signs of overheating (such as deformed plastic) at the ac input or anywhere on the power adapter.

Do not use any power cords where the electrical contacts on either end show signs of corrosion or overheating or where the power cord appears to have been damaged in any way.

## Extension cords and related devices

Ensure that extension cords, surge protectors, uninterruptible power supplies, and power strips that you use are rated to handle the electrical requirements of the product. Never overload these devices. If power strips are used, the load should not exceed the power strip input rating. Consult an electrician for more information if you have questions about power loads, power requirements, and input ratings.

## Plugs and outlets

If a receptacle (power outlet) that you intend to use with your computer equipment appears to be damaged or corroded, do not use the outlet until it is replaced by a qualified electrician.

Do not bend or modify the plug. If the plug is damaged, contact the manufacturer to obtain a replacement.

Some products are equipped with a three-pronged plug. This plug fits only into a grounded electrical outlet. This is a safety feature. Do not defeat this safety feature by trying to insert it into a non-grounded outlet. If you cannot insert the plug into the outlet, contact an electrician for an approved outlet adapter or to replace the outlet with one that enables this safety feature. Never overload an electrical outlet. The overall system load should not exceed 80 percent of the branch circuit rating. Consult an electrician for more information if you have questions about power loads and branch circuit ratings.

Be sure that the power outlet you are using is properly wired, easily accessible, and located close to the equipment. Do not fully extend power cords in a way that will stress the cords.

Connect and disconnect the equipment from the electrical outlet carefully

## Batteries

### An important note regarding Lithium-Ion batteries:

When a Lithium-Ion battery overheats or experiences a short circuit, pressure and temperature can increase inside the battery cells. The cells are designed to release pressure and cell materials through vents in the cell can. This design is an important safety feature.

IBM has received a number of reports from customers that the Lithium-Ion batteries in their portable computers have overheated and "vented". Some customers reported hearing a hissing, cracking or popping sound immediately before these incidents. Smoke, sparks, and in some instances flames may escape from the battery during these incidents. The battery pack may become extremely hot and the heat may cause the bottom of the portable computer to become deformed. In extreme circumstances, the heat may create a hole in the bottom of the computer. Reports of these types of incidents have not been limited to IBM products or portable personal computers.

Users are encouraged to comply with the instructions below and to visit IBM's Safe and Effective Computing web site at http://www.pc.ibm.com/us/safecomp.html regularly for the latest information. Portable personal computers typically include a rechargeable battery pack.

Portable and desktop personal computers may also include a coin-sized internal battery that provides power to the system clock when the machine is unplugged. The following information applies to all such batteries:

- Only use battery packs and charging devices that have been approved by IBM for use with your particular product.
- Follow instructions included with your product when charging and operating the battery.
- Do not open or service your battery. Contact the IBM Support Center for assistance.
- Do not crush, puncture, or incinerate the battery pack or short circuit the battery contacts.
- Do not expose the battery to liquids.
- Keep the areas around battery compartments, electrical connectors, and device bays clean and free of debris, particularly stray metal.
- If your battery is damaged, or if you notice a discharge from your battery or the buildup of foreign materials on the battery leads, stop using the battery, obtain an approved replacement, and properly discard the original battery.
- The rechargeable battery in your portable personal computer will provide better performance and longer life if you cycle the battery periodically. Cycling involves running the laptop on battery mode until the low power alarm on your battery sounds, then promptly recharging the battery to 100%. You should not allow your battery to remain fully discharged for a long period of time (referred to as a "deep discharge").
- Batteries may experience a deep discharge if they are left unused for a long period of time. This may shorten battery life and increase the risk of a short circuit. Charge batteries periodically, including spare batteries, to avoid potential problems. Recharging batteries to 40% of their capacity at least once every six months is advisable.
- If your battery will not charge, will not operate very long in battery mode, or if the Battery Health indicator is red (this feature may not be included on your model) you should discontinue using it and obtain an IBM replacement battery. While you may notice a decrease in performance when operating without the battery pack, you may continue to operate the computer using only your AC adapter until you receive your replacement battery. If the replacement battery does not offer improved performance, contact the IBM Support Center for assistance.

## Heat and product ventilation

Computers generate heat when turned on and when batteries are charging. Notebook PCs can generate a significant amount of heat due to their compact size. Always follow these basic precautions:

- 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 produces some heat during normal operation. Extended contact with the body could cause discomfort or, potentially, a skin burn.

- Do not operate your computer or charge the battery near flammable materials or in explosive environments.
- Ventilation slots, fans and/or heat sinks are provided with the product for safety, comfort, and reliable operation. These features might inadvertently become blocked by placing the product on a bed, sofa, carpet, or other flexible surface. Never block, cover or disable these features.

### CD and DVD drive safety

CD and DVD drives spin discs at a high speed. If a CD or DVD is cracked or otherwise physically damaged, it is possible for the disc to break apart or even shatter when the CD drive is in use. To protect against possible injury due to this situation, and to reduce the risk of damage to your machine, do the following:

- Always store CD/DVD discs in their original packaging
- Always store CD/DVD discs out of direct sunlight and away from direct heat sources
- Remove CD/DVD discs from the computer when not in use
- Do not bend or flex CD/DVD discs, or force them into the computer or their packaging
- Check CD/DVD discs for cracks before each use. Do not use cracked or damaged discs

### Additional safety information

**DANGER**

Electric 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. If the 3-pin power cord is provided with this product, it 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 receptacles. | Remove signal cables from receptacles. |
| Attach the power cord to an outlet. | Remove all cables from devices. |
| Turn the device ON. | |
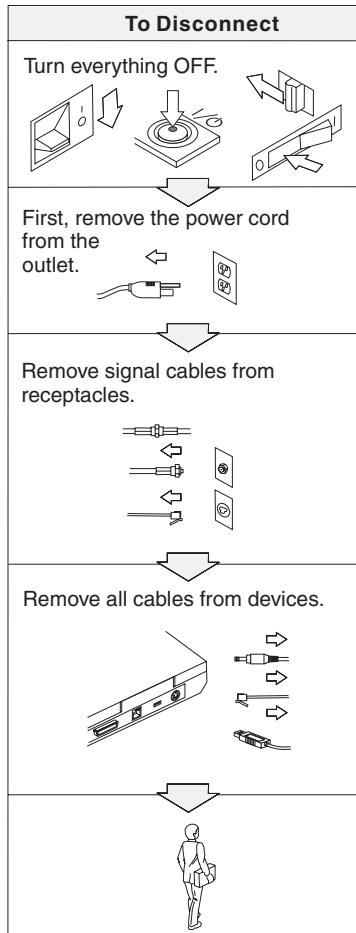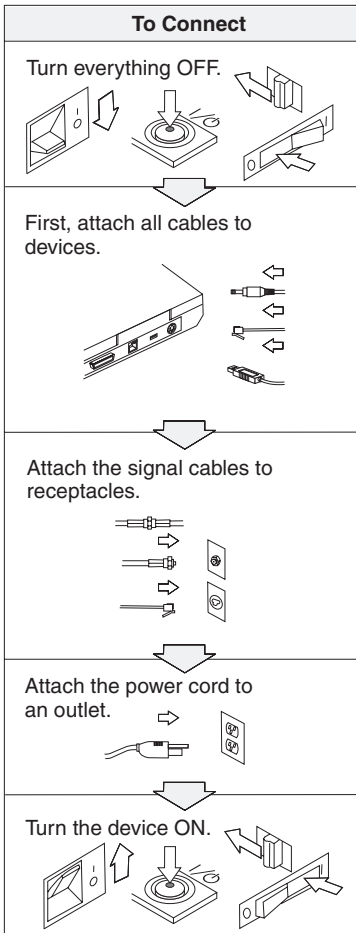
⚠ **DANGER**

> Reduce the risk of fire and electric shock by always following basic safety precautions, including the following:
>
> - Do not use your computer in or near water.
> - During electrical storms:
>   - Do not use your computer with the telephone cable connection.
>   - Do not connect the cable to or disconnect it from the telephone outlet on the wall.

⚠ **DANGER: Storing the rechargeable battery pack**

> The battery pack should be stored at room temperature, charged to approx. 30 to 50 % of capacity. We recommend that battery pack be charged about once per year to prevent overdischarge.

⚠ **DANGER**

> If the rechargeable battery pack is incorrectly replaced, there is danger of an explosion. The battery pack contains a small amount of harmful substances. To avoid possible injury:
>
> - Replace only with a battery of the type recommended by IBM.
> - Keep the battery pack away from fire.
> - Do not expose it to water or rain.
> - Do not attempt to disassemble it.
> - Do not short-circuit it.
> - Keep it away from children.
>
> Do not put the battery pack in trash that is disposed of in landfills. When disposing of the battery, comply with local ordinances or regulations and your company's safety standards.

⚠️ **DANGER**

| |
|---|
| If the backup battery is incorrectly replaced, there is danger of explosion. |
| The lithium battery contains lithium and can explode if it is not properly handled or disposed of. |
| Replace only with a battery of the same type. |
| To avoid possible injury or death, do not: (1) throw or immerse the battery into water, (2) allow it to heat to more than 100 °C (212 °F), or (3) attempt to repair or disassemble it. Dispose of it as required by local ordinances or regulations and your company's safety standards. |

⚠️ **DANGER**

| |
|---|
| Follow the instruction below when installing or reconfiguring the CDC or Mini PCI option. |
| To avoid shock hazard, disconnect all the cables and the ac adapter when you install the CDC or Mini PCI option or open the covers of the system or attached devices. Electrical current from power, telephone, and communication cables is hazardous. |

**CAUTION:**

When you have added or upgraded a CDC or Mini PCI Card or a memory card, do not use your computer until you have closed the cover. Never use the computer when the cover is open.

**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; if any symptoms are present after washing, get medical care.

⚠️ **DANGER: Modem safety information**

> **To reduce the risk of fire, electrical shock, or injury when using telephone equipment, always follow basic safety precautions, such as:**
> - **Never install telephone wiring during an electrical storm.**
> - **Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.**
> - **Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.**
> - **Use caution when installing or modifying telephone lines.**
> - **Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.**
> - **Do not use the telephone to report a gas leak in the vicinity of the leak.**
> - **Use only No. 26 AWG or larger (thicker) telephone cable.**

## Laser compliance statement

An optical storage drive (device), such as a CD-ROM, CD-RW, DVD-ROM drive and SuperDisk, which can be installed in the IBM ThinkPad computer is a laser product. The drive's classification label (shown below) is on the surface of the drive.

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

The drive is certified by the manufacturer to comply with the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class I laser products at the date of manufacture.

In other countries, the drive is certified to conform to the requirements of IEC825 and EN60825 for Class 1 laser products.

⚠**DANGER**

**Do not open the optical storage drive unit; no user adjustments or serviceable parts are inside.**

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

Class 1 laser products are not considered hazardous. The design of the laser system and the optical storage drive ensures that there is no exposure to laser radiation above a Class 1 level during normal operation, user maintenance, or servicing.

Some drives contain an embedded Class 3A laser diode. Note this warning:

⚠**DANGER**

Emits visible and invisible laser radiation when open. Avoid direct eye exposure. Do not stare into the beam or view it directly with optical instruments.

⚠**DANGER**

**Store packing materials safely out of the reach of children to prevent the risk of suffocation from plastic bags.**

Many PC products and accessories contain cords, cables or wires, such as power cords or cords to connect the accessory to a PC. If this product has such a cord, cable or wire, then the following warning applies:
**WARNING:** Handling the cord on this product or cords associated with accessories sold with this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling*.

Save these instructions.

# Important notice for users

## Important regulatory notice for users

The ThinkPad® X40 Series computer complies with the radio frequency and safety standards of any country or region in which it has been approved for wireless use. You are requested to install and use your ThinkPad computer in strict accordance with the local RF regulations. Before you use the ThinkPad X40 Series computer, please find and read *ThinkPad X40 Series Regulatory Notice,* the notice that supplements this Service and Troubleshooting Guide. The notice is included in the package with this publication.

## Information about hard disk capacity

Instead of providing a recovery CD or a Windows® CD with your computer, IBM® provides simpler methods of accomplishing the tasks typically associated with these CDs. The files and programs for these alternative methods are on your hard disk, which eliminates having to locate misplaced CDs and problems associated with using an incorrect CD version.

The complete backup of all the files and programs that IBM preinstalled on your computer resides in a hidden section, or partition, of the hard disk. Although hidden, the backups in the partition consume hard disk space. Therefore, when checking the capacity of your hard disk according to Windows, you might note that the total capacity of the disk appears to be smaller than anticipated. This discrepancy is explained by the contents of the hidden partition. (See "Recovering pre-installed software" on page 29.)

For more information about recovering your hard disk to the original preinstalled contents refer to your on-system help source, Access IBM. Press the blue Access IBM button or click the Access IBM icon on your desktop, and then browse the Learn section for various topics that cover backing up and recovering.

# Finding information with Access IBM



The blue Access IBM button can help you in many situations when your computer is working normally, and even when it is not. At your desktop, press the Access IBM button to open Access IBM. Access IBM is your on-board computer help center that brings you informative illustrations and easy-to-follow instructions for getting started and staying productive. You can also use the Access IBM button to interrupt the startup sequence of your computer and start the IBM Rescue and Recovery. If Windows does not start correctly, press the Access IBM button during the startup sequence of your computer and start the IBM Rescue and Recovery. Use this area to run diagnostics, restore your backups (assuming you have made backups using IBM Rescue and Recovery), restore to factory contents (i.e., what was there when you received your computer), start a utility that enables you to change your startup sequence, and get essential system information, and start the IBM BIOS Setup Utility where you can check and change BIOS settings.

Press the Access IBM button to open the application that brings all of IBM's resources to you. Below you will see the Welcome page of Access IBM that explains what each part of Access IBM holds to help you.
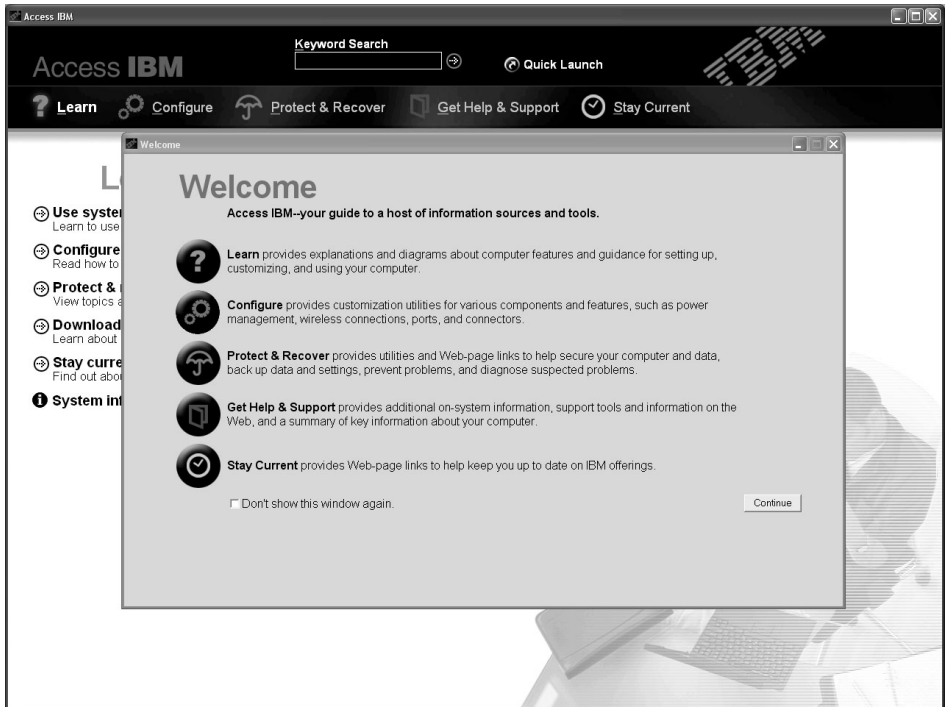
Some of the topics in your help system contain brief video clips that show you how to perform certain tasks, such as replacing your battery, inserting a PC Card, or upgrading your memory. Use the controls shown to play, pause, and rewind the video clip.

# Chapter 1. Overview of your new ThinkPad computer

## Your ThinkPad at a glance

**Front view**

Computer display

Access IBM button

System-status indicators

TrackPoint

Kensington lock hole

Modem connector

Ethernet connector

Fingerprint reader

USB connector

Infrared port

PC Card slot

SD Card slot

Microphone jack

Stereo headphone jack

**Rear view**

USB connector

USB power connector

Monitor connector

Power jack
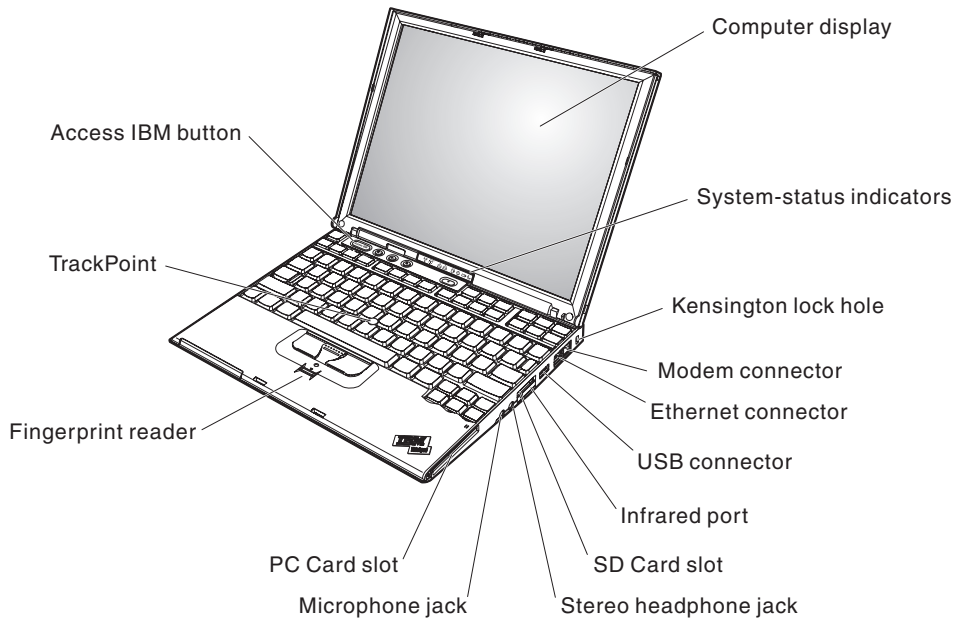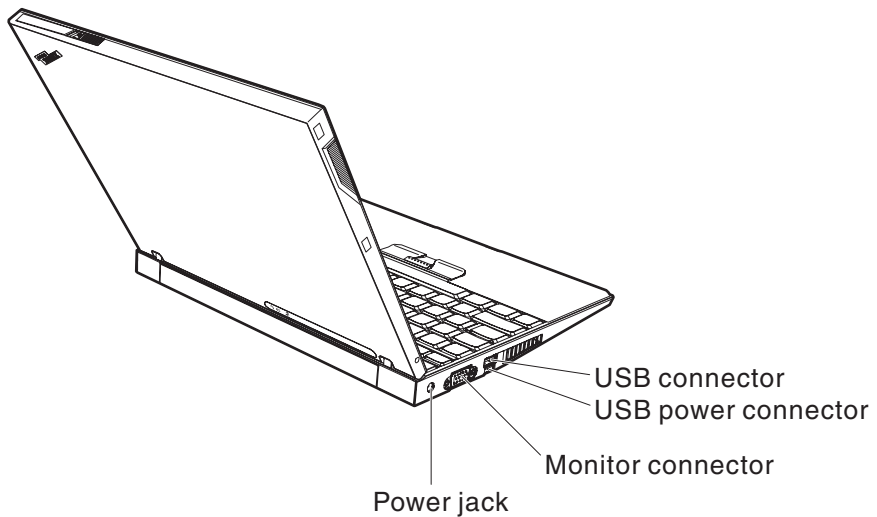
## Features

**Processor**
- Intel® Pentium® M processor

**Memory**
- PC4200 double data rate II (DDR2) synchronous dynamic random access memory (DRAM)

**Storage device**
- 1.8-inch hard disk drive

**Display**

The color display uses TFT technology:
- Size: 12.1 inch
- Resolution:
  - LCD: 1024-by-768
  - External monitor: Up to 2048-by-1536
- Brightness control

**Keyboard**
- 87-key, 88-key, or 92-key (including Fn key, and Forward and Backward keys)
- Fingerprint reader (on some models)
- Forward and Backward keys
- TrackPoint®
- Fn key function
- Access IBM button
- Volume control buttons
- ThinkLight™

**External interface**
- External-monitor connector
- PC Card slot (Type I or Type II PC Card)
- Secure Digital card slot
- Stereo headphone jack
- Microphone jack
- Universal Serial Bus (USB) connector
- Powered USB connector (Universal Serial Bus (USB) connector with power connector)
- Infrared port
- RJ11 telephone connector
- RJ45 Ethernet connector
- Docking connector
- Integrated wireless LAN feature (on some models)
- Integrated *Bluetooth* feature (on some models)

## Specifications

### Size
- Width: 268 mm (10.55 in.)
- Depth: 211 mm (8.31 in.)
- Height: 21 mm – 27 mm (0.83 in. – 1.06 in.)

### Environment
- Maximum altitude without pressurization: 3048 m (10,000 ft)
- Temperature
  – At altitudes up to 2438 m (8000 ft)
    - Operating with no diskette: 5° to 35°C (41° to 95°F)
    - Operating with a diskette: 10° to 35°C (50° to 95°F)
    - Not operating: 5° to 43°C (41° to 110°F)
  – At altitudes above 2438 m (8000 ft)
    - Maximum operating temperature, 31.3°C (88° F)

  **Note:** When you charge the battery pack, its temperature must be at least 10°C (50°F).
- Relative humidity:
  – Operating with no diskette in the drive: 8% to 90%
  – Operating with a diskette in the drive: 8% to 80%

### Heat output
- 56 W (191 Btu/hr) maximum

### Power source (ac adapter)
- Sine-wave input at 50 to 60 Hz
- Input rating of the ac adapter: 100-240 V ac, 50 to 60 Hz

### Battery pack
- ThinkPad X40 Series 4 Cell Lithium-ion (Li-Ion) battery pack
  – Nominal voltage: 14.4 V dc
  – Capacity: 1.9 AH
- ThinkPad X40 Series 8 Cell Li-Ion battery pack
  – Nominal voltage: 14.4 V dc
  – Capacity: 4.3 AH

## Caring for your ThinkPad computer

Though your computer is designed to function reliably in normal work environments, you need to use common sense in handling it. By following these important tips, you will get the most use and enjoyment out of your computer.

**Important tips:**

**Be careful about where and how you work**

- 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 system activity and battery charge level. Extended contact with your body, even through clothing, could cause discomfort or, eventually, a skin burn.
- Place liquids away from your computer to avoid spills, and keep your computer away from water (to avoid the danger of electrical shock).
- Store packing materials safely out of the reach of children to prevent the risk of suffocation from plastic bags.
- Keep your computer away from magnets, activated cellular phones, electrical appliances, or speakers (within 13 cm/5 in).
- Avoid subjecting your computer to extreme temperatures (below 5°C/41°F or above 35°C/95°F).

**Be gentle with your computer**

- Avoid placing any objects (including paper) between the display and the keyboard or under the keyboard.
- Do not drop, bump, scratch, twist, hit, vibrate, push or place heavy objects on your computer, display, or external devices.
- Your computer display is designed to be opened and used at an angle slightly greater than 90 degrees. Do not open the display beyond 180 degrees, as this might damage the computer hinge.

**Carry your computer properly**

- Before moving your computer, be sure to remove any media, turn off attached devices, and disconnect cords and cables.
- Be sure your computer is in standby or hibernation mode, or turned off, before moving it. This will prevent damage to the hard disk drive and data loss.
- When picking up your open computer, hold it by the bottom. Do not pick up or hold your computer by the display.

- Use a quality carrying case that provides adequate cushion and protection. Do not pack your computer in a tightly packed suitcase or bag.

**Handle storage media and drives properly**
- Avoid inserting diskettes at an angle and attaching multiple or loose diskette labels, as these can lodge in the drive.
- If your computer comes with an optical drive such as CD, DVD, or CD-RW/DVD drive, do not touch the surface of a disc or the lens on the tray.
- Wait until you hear the CD or DVD click into the center pivot of an optical drive such as CD, DVD, or CD-RW/DVD drive before closing the tray.
- When installing your hard disk, diskette, CD, DVD, or CD-RW/DVD drive, follow the instructions shipped with your hardware, and apply pressure only where needed on the device. See Access IBM, your on-board help system, for information on replacing your hard disk drive (open Access IBM by pressing the Access IBM button).

**Take care in setting passwords**
- Remember your passwords. If you forget a supervisor or hard disk password, IBM will not reset it, and you might have to replace your system board or hard disk drive.

**Other important tips**
- Your computer modem might use only an analog telephone network, or public-switched telephone network (PSTN). Do not connect the modem to a PBX (private branch exchange) or any other digital telephone extension line because this could damage your modem. Analog phone lines are often used in homes, while digital phone lines are often used in hotels or office buildings. If you are not sure which kind of phone line you are using, contact your telephone company.
- Your computer might have both an Ethernet connector and a modem connector. If so, be sure to connect your communication cable to the correct one, so your connector is not damaged. See Access IBM, your on-board help system, for information on the location of these connectors (press the Access IBM button to open Access IBM).
- Register your ThinkPad products with IBM (refer to the Web page: www.ibm.com/pc/register). 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 technical information and upgrades.
- Only an authorized IBM ThinkPad repair technician should disassemble and repair your computer.
- Do not modify or tape the latches to keep the display open or closed.

- Take care not to turn your computer over while the ac adapter is plugged in. This could break the adapter plug.
- Turn off your computer if you are replacing a device in a device bay, or else verify that the device is warm-or hot-swappable.
- If you exchange drives in your computer, reinstall the plastic bezel faces (if supplied).
- Store your external and removable hard disk, diskette, CD, DVD, and CD-RW/DVD drives in the appropriate containers or packaging when they are not being used.

**Cleaning the cover of your computer**

Occasionally clean your computer as follows:

1. Prepare a mixture of a gentle kitchen-use detergent (one that does not contain abrasive powder or strong chemicals such as acid or alkaline). Use 5 parts water to 1 part detergent.
2. Absorb the diluted detergent into a sponge.
3. Squeeze excess liquid from the sponge.
4. Wipe the cover with the sponge, using a circular motion and taking care not to let any excess liquid drip.
5. Wipe the surface to remove the detergent.
6. Rinse the sponge with clean running water.
7. Wipe the cover with the clean sponge.
8. Wipe the surface again with a dry, soft lint-free cloth.
9. Wait for the surface to dry completely and remove any fibers from the cloth.

**Cleaning your computer keyboard**

1. Absorb some isopropyl rubbing alcohol on a soft, dust-free cloth.
2. Wipe each keytop surface with the cloth. Wipe the keys one by one; if you wipe several keys at a time, the cloth may hook onto an adjacent key and possibly damage it. Make sure that no liquid drips onto or between the keys.
3. Allow to dry.
4. To remove any crumbs and dust from beneath the keys, you can use a camera blower with a brush or cool air from a hair drier.

   **Note:** Avoid spraying cleaner directly on the display or the keyboard.

**Cleaning your computer display**

1. Gently wipe the display with a dry, soft lint-free cloth. If you see a scratchlike mark on your display, it might be a stain transferred from the keyboard or the TrackPoint pointing stick when the cover was pressed from the outside.
2. Wipe or dust the stain gently with a soft, dry cloth.
3. If the stain remains, moisten a soft, lint-free cloth with water or a 50-50 mixture of isopropyl alcohol and water that does not contain impurities.
4. Wring out as much of the liquid as you can.
5. Wipe the display again; do not let any liquid drip into the computer.
6. Be sure to dry the display before closing it.

**Care for the fingerprint reader**

The following actions could damage the fingerprint reader or cause it not to work properly:
- Scratching the surface of the reader with a hard, pointed object.
- Scrapping the surface of the reader with your nail or anything hard.
- Using or touching the reader with a dirty finger.

If you notice any of the following conditions, gently clean the surface of the reader with a dry, soft, lint-free cloth:
- The surface of the reader is dirty or stained.
- The surface of the reader is wet.
- The reader often fails to enroll or authenticate your fingerprint.

# Chapter 2. Solving computer problems

## Diagnosing problems

If you have a problem with your computer, you can test it by using PC-Doctor for Windows. To run PC-Doctor for Windows, do as follows:

1. Click **Start**.
2. Move the pointer to **All Programs** (in Windows other than Windows XP, **Programs**) and then to **PC-Doctor ® for Windows**.
3. Click **PC-Doctor**.
4. Choose one of the tests, from either **Device Categories** or **Test Scripts**.

> **Attention**
> Running any tests may take up to several minutes or longer. Make sure you have time to run the entire test; do not interrupt the test while it is running.

The **System Test** of the **Test Scripts** runs some tests of critical hardware components, but it does not run all of the diagnostic tests in PC-Doctor for Windows. If PC-Doctor for Windows reports that all of the tests in the **System Test** have been run and that it has found no problems, consider running more of the tests in PC-Doctor for Windows.

If you are preparing to contact IBM for support, be sure to print the test log so that you can rapidly provide information to the help technician.

## Troubleshooting

If you do not find your problem here, refer to your on-board help system, Access IBM. To open Access IBM, press the Access IBM button. The following section only describes problems that might prevent you from accessing the help system.

### Error messages

**Notes:**
1. In the charts, x can be any character.
2. The version of PC-Doctor referred to here is PC-Doctor for Windows.

| Message | Solution |
|---|---|
| 0175: Bad CRC1, stop POST task | The EEPROM checksum is not correct (block #6). Have the computer serviced. |
| 0176: System Security - The System has been tampered with. | This message is displayed if you remove the Security Chip and reinstall it, or install a new one. To clear the error, enter the IBM BIOS Setup Utility, press F9 to set values to default, then press F10 to save changes. If this does not solve the problem, have the computer serviced. |

| Message | Solution |
|---|---|
| 0177: Bad SVP data, stop POST task. Checksum of the supervisor password in the EEPROM is not correct. | Checksum of the supervisor password in the EEPROM is not correct. The system board should be replaced. Have the computer serviced. |
| 0182: Bad CRC2. Enter BIOS Setup and load Setup defaults. | Checksum of the CRC2 setting in the EEPROM is not correct. Press F1 to go to IBM BIOS Setup Utility. Press F9 and then Enter to load the default setting. Press F10 and then Enter to restart the system. |
| 0185: Bad startup sequence settings. Enter BIOS Setup and load Setup defaults. | Checksum of the startup sequence setting in the EEPROM is not correct. Press F1 to go to IBM BIOS Setup Utility. Press F9 and then Enter to load the default setting. Press F10 and then Enter to restart the system. |
| 0187: EAIA data access error | The access to EEPROM is failed. Have the computer serviced. |
| 0188: Invalid RFID serialization information area . | The EEPROM checksum is not correct (block # 0 and 1, or block # 6). The system board should be replaced, and the box serial number needs to be reinstalled. Have the computer serviced. |
| 0189: Invalid RFID configuration information area | The EEPROM checksum is not correct (block # 4 and 5). The system board should be replaced, and the UUID needs to be reinstalled. Have the computer serviced. |
| 0190: Critical low-battery error | The computer turned off because the battery is low. Connect the ac adapter to the computer and charge the battery, or replace the battery with a fully charged one. |
| 0191: System Security - Invalid remote change requested. | The system configuration change has failed. Confirm the operation and try again.To clear the error, enter the IBM BIOS Setup Utility, press F9 to set values to default then press F10 to save changes. |
| 0192: System Security - IBM Embedded Security hardware tamper detected. | The Security Chip has been replaced with a different one. Have the computer serviced. |
| 0199: System Security - IBM Security password retry count exceeded. | This message is displayed if you enter a wrong supervisor password more than three times. Confirm the supervisor password and try again. To clear the error, enter the IBM BIOS Setup Utility. |
| 01C8: More than one modem devices are found. Remove one of them. Press <Esc> to continue. | Remove either a Modem Mini-PCI Card or a Modem Daughter Card. Otherwise, press Esc to ignore the warning message. If it does not solve this problem, have the computer serviced. |
| 01C9: More than one Ethernet devices are found. Remove one of them. Press <Esc> to continue. | Your ThinkPad computer has a built-in Ethernet feature, and you cannot add another such feature by installing an Ethernet device. If this error message is displayed, remove the Ethernet device that you installed. Otherwise press Esc to ignore the warning message. If this does not solve the problem, have the computer serviced. |

| Message | Solution |
|---|---|
| 0200: Hard disk error | The hard disk is not working. Make sure that the hard disk drive is attached firmly. Run the IBM BIOS Setup Utility; then make sure the hard disk drive is not disabled in the Startup menu. |
| 021x: Keyboard error | Make sure that there are no objects placed on the keyboard, or if you have one, the external keyboard. Turn off the computer, and turn off all attached devices. Turn on the computer first; then turn on the attached devices. |
| | If you still see the same error code, do the following: |
| | If an external keyboard is connected, do the following: |
| | • Turn off the computer and disconnect the external keyboard; then turn on the computer. Make sure that the built-in keyboard operates correctly. If it does, have the external keyboard serviced. |
| | • Make sure that the external keyboard is connected to the correct connector. |
| | Test the computer by using PC-Doctor. |
| | • If the computer stops during the test, have the computer serviced. |
| 0230: Shadow RAM error | The shadow RAM failed. Test your computer's memory with PC-Doctor. If you added a memory module just before turning the computer on, reinstall it. Then test the memory with PC-Doctor. |
| 0231: System RAM error | The system RAM failed. Test your computer's memory with PC-Doctor. If you added a memory module just before turning the computer on, reinstall it. Then test the memory with PC-Doctor. |
| 0232: Extended RAM error | The extended RAM failed. Test your computer's memory with PC-Doctor. If you have increased memory just before turning the computer on, reinstall it. Then test the memory with PC-Doctor. |
| 0250: System battery error | The backup battery, which is used to preserve the configuration information, such as the date and time, while the computer is turned off, is depleted. Replace the battery and run IBM BIOS Setup Utility to verify the configuration. If you still have a problem, have the computer serviced. |
| 0251: System CMOS checksum bad | The system CMOS might have been corrupted by an application program. The computer uses the default settings. Run IBM BIOS Setup Utility to reconfigure the settings. If you still see the same error code, have the computer serviced. |
| 0260: System timer error | Have the computer serviced. |
| 0270: Real time clock error | Have the computer serviced. |
| 0271: Date and time error | Neither the date nor the time is set in the computer. Set the date and time, using the IBM BIOS Setup Utility. |

| Message | Solution |
|---|---|
| 0280: Previous boot incomplete | Your computer was previously unable to complete the boot process.<br><br>Turn the computer off; then turn it on to start the IBM BIOS Setup Utility. Verify the configuration and then restart the computer either by choosing the **Exit Saving Changes** option under the **Restart** item or by pressing F10. If you still see the same error code, have the computer serviced. |
| 02D0: System cache error | The cache is disabled. Have the computer serviced. |
| 02F4: EISA CMOS not writable | Have the computer serviced. |
| 02F5: DMA test failed | Have the computer serviced. |
| 02F6: Software NMI failed | Have the computer serviced. |
| 02F7: Fail-safe timer NMI failed | Have the computer serviced. |
| 1802: Unauthorized network card is plugged in - Power off and remove the miniPCI network card. | The Mini-PCI network card is not supported on this computer. Remove it. |
| 1803: Unauthorized daughter card is plugged in-Power off and remove the daughter card. | The daughter card is not supported on this computer. Remove it. |

| Message | Solution |
|---------|----------|
| 1810: Hard disk partition layout error | A problem in recognizing the layout of the partition on the hard disk has halted computer startup. Either the IBM Predesktop Area has been deleted, or the hard disk contains corrupt data. To try to restart your computer, complete one of the following:<br><br>• If the IBM Predesktop Area has been deleted<br><br>  1. Press F1 to open the IBM BIOS Setup Utility.<br>  2. Select **Security**->**IBM Predesktop Area**-> **Access IBM Predesktop Area**.<br>  3. Set this item to **Disabled**.<br>  4. Save and exit.<br><br>• If the above fails<br><br>  1. Press Enter.<br>  2. Double-click **RECOVER TO FACTORY CONTENTS** and follow on-screen instructions.<br><br>**Note:** This will permanently erase the entire contents of the hard disk, and then restore software preinstalled by IBM.<br><br>Press F1 to open BIOS Setup, or Enter to start the IBM Predesktop Area.<br><br>If the computer still does not start, call the IBM Support Center. Telephone numbers are on page "Telephone numbers" on page 39. |
| The power-on password prompt | A power-on password or a supervisor password is set. Type the password and press Enter to use the computer. If the power-on password is not accepted, a supervisor password might have been set. Type the supervisor password and press Enter. If you still see the same error message, have the computer serviced. |
| The hard disk password prompt | A hard disk password is set. Type the password and press Enter to use the computer.<br><br>If you still see the same error message, have the computer serviced. |
| Hibernation error | The system configuration changed between the time your computer entered hibernation mode and the time it left this mode, and your computer cannot resume normal operation.<br><br>• Restore the system configuration to what it was before your computer entered hibernation mode.<br>• If the memory size has been changed, re-create the hibernation file. |
| Operating system not found. | Verify the following:<br><br>• The hard disk drive is correctly installed.<br>• A startable diskette is in the diskette drive<br><br>If you still see the same error message, check the boot sequence, using the IBM BIOS Setup Utility. |
| Fan error | The cooling fan has failed. Have the computer serviced. |

| Message | Solution |
|---------|----------|
| EMM386 Not Installed — Unable to Set Page Frame Base Address. | Edit C:\CONFIG.SYS and change a line from<br><br>`device=C:\WINDOWS\EMM386.EXE RAM`<br><br>to<br><br>`device=C:\WINDOWS\EMM386.EXE NOEMS`<br><br>and save this file. |
| CardBus Configuration Error —Device Disabled | Go to the IBM BIOS Setup Utility. Press F9 and then Enter to load the default setting.<br><br>Press F10 and then Enter to restart the system. |
| Thermal sensing error | The thermal sensor is not functioning correctly. Have the computer serviced. |
| Authentication of system services failed.<br><br>Press <Esc> to resume. | The IBM Predesktop Area in the HDD is broken. If you need to use the IBM Predesktop Area, get a Recovery CD, then recover the IBM Predesktop Area using it. |

## Errors without messages

**Problem:**

When I turn on the machine, nothing appears on the screen and the machine does not beep while starting up.

**Note:** If you are not sure whether you heard any beeps, turn off the computer; then turn it on again, and listen again. If you are using an external monitor, refer to "Computer screen problems" on page 22

**Solution:**

If a power-on password is set, press any key to display the power-on password prompt, and then type the correct password and press Enter.

If the power-on password prompt does not appear, the brightness level might be set to minimum brightness. Adjust the brightness level by pressing the Fn+Home.

If the screen still remains blank, make sure that:

- The battery 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 these items are properly set, and the screen remains blank, have the computer serviced.

**Problem:**
    When I turn on the machine, nothing appears on the screen, but I hear two or more beeps.

**Solution:**
    Make sure that the memory card is installed correctly. If it is, but the screen is still blank, and you hear five beeps, have the computer serviced.

    If you hear 4 cycles of 4 beeps each, the Security Chip has a problem. Have the computer serviced.

**Problem:**
    When I turn on the machine, only a white pointer appears on a blank screen.

**Solution:**
    Reinstall your operating system, and turn on the computer. If you still see only the pointer on the screen, have the computer serviced.

**Problem:**
    My screen goes blank while the computer is on.

**Solution**
    Your screen saver or power management may be enabled. Move the TrackPoint or press a key to exit the screen saver, or press the power switch to resume from standby or hibernation.

**Problem:**
    The DOS full-screen looks smaller.

**Solution:**
    If you use a DOS application that supports only 640×480 resolution (VGA mode), the screen image might look slightly distorted or appear smaller than the display size. This is to maintain compatibility with other DOS applications. To expand the screen image to the same size as the actual screen, start the ThinkPad Configuration Program and click **LCD**; then select the **Screen expansion** function. (The image might still look slightly distorted.)

    **Note:** If your computer has a screen expansion function, you can use the Fn+F8 keys to expand the screen image.

## A password problem

**Problem:**
    I forgot my password.

**Solution:**
    If you forgot your power-on password, you must take your computer to an IBM authorized servicer or marketing representative to have the password canceled.

If you forgot your hard disk password, IBM will not reset your password or recover data from the hard disk. You must take your computer to an IBM authorized servicer or an IBM marketing representative to have the hard disk drive replaced. Proof of purchase is required, and a fee will be charged for parts and service.

If you forgot your supervisor password, IBM will not reset your password. You must take your computer to an IBM authorized servicer or IBM marketing representative to have the system board replaced. Proof of purchase is required, and a fee will be charged for parts and service.

## A power switch problem

**Problem:**
The system does not respond, and you cannot turn off the computer.

**Solution:**
Turn off the computer by pressing and holding the power switch for 4 seconds or more. If the computer is still not reset, remove the ac adapter and the battery.

## Keyboard problems

**Problem:**
All or some of the keys on the keyboard do not work.

**Solution:**
If an external PS/2 keyboard is connected, the numeric keypad on your computer does not work. Use the numeric keypad on the external keyboard.

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 resolved, carefully reconnect the external numeric keypad, external keyboard, or mouse, making sure that you have seated the connectors properly.

If keys on the keyboard still do not work, have the computer serviced.

**Problem:**
A number appears when you type a letter.

**Solution**
The numeric lock function is on. To disable it, press and hold Shift; then press NumLk.

**Problem:**
All or some of the keys on the external numeric keypad do not work.

**Solution:**
   Make sure that the external numeric keypad is correctly connected to the computer.

**Problem:**
   All or some keys on the external PS/2 keyboard do not work.

**Solution:**
   If you are using the X4 UltraBase™ Dock, connect the keyboard connector to the keyboard/mouse connector on the X4 UltraBase Dock. If you use a mouse and an external keyboard simultaneously, you need the keyboard/mouse connector. Make sure that keyboard/mouse connector is correctly connected to the mouse connector of the X4 UltraBase Dock, and that the keyboard cable is correctly connected to the keyboard connector of the keyboard/mouse connector.

   If the connection is correct, disconnect the cable and make sure that the built-in keyboard operates properly. If the built-in keyboard works, there is a problem with the external keyboard. Try using a different external keyboard.

## TrackPoint problems

**Problem:**
   The pointer drifts when the computer is turned on or after it resumes normal operation.

**Solution:**
   The pointer 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. The pointer drifts 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.

**Problem:**
   The mouse or the pointing device does not work.

**Solution:**
   Make sure that the TrackPoint is set to Automatic in the ThinkPad Configuration Program. Then detach the mouse or the pointing device, and try using the TrackPoint. If the TrackPoint works, the error might be due to the mouse or the pointing device.

   Make sure that the cable for the mouse or the pointing device is securely connected to the X4 UltraBase Dock.

   If your mouse is incompatible with the IBM PS/2 mouse, disable the TrackPoint, using the ThinkPad Configuration Program.

**Note:** For more information, see the manual supplied with the mouse.

**Problem**

The mouse buttons do not work.

**Solution**

Change the mouse driver to **Standard PS/2® Port Mouse**, and then reinstall **IBM PS/2 TrackPoint**. Drivers are provided in the C:\IBMTOOLS\DRIVERS directory on your hard disk drive. If your hard disk drive does not contain device drivers, refer to the ThinkPad Web site. To access this Web site, press the Access IBM button. The Access IBM panel opens. On it, click **Get Help & Support**, and then click **Download & update**. Select **Newest device drivers**.

**Problem**

The scrolling or magnifying glass function does not work.

**Solution**

Check the mouse driver in the Device Manager window, and make sure that the IBM PS/2 TrackPoint driver is installed.

## Standby and hibernation problems

**Problem:**

The computer enters standby mode unexpectedly.

**Solution:**

If the processor overheats, the computer automatically enters standby mode to allow the computer to cool and to protect the processor and other internal components. Also, check the settings for standby mode, using Power Manager.

**Problem:**

The computer enters standby mode immediately after Power-on self-test (POST) (the standby indicator light turns on).

**Solution:**

Make sure that:
- The battery is charged.
- The operating temperature is within the acceptable range. Refer to "Specifications" on page 4.

If these items are correct, have the computer serviced.

**Problem:**

The `critical low-battery` error message is displayed, and the computer immediately turns off.

**Solution:**

The battery power is getting low. Connect the ac adapter to the computer, or replace the battery with a fully charged one.

**Problem:**
When you take action to return from standby mode, the computer display remains blank.

**Solution:**
Check whether an external monitor was disconnected while the computer was in standby mode. Do not disconnect the external monitor while the computer is in standby mode or hibernation mode. If no external monitor is attached when the computer resumes, the computer display remains blank and output is not displayed. This restriction does not depend on the resolution value. Press Fn+F7 to bring up the computer display.

**Note:** If you use the Fn+F7 key combination to apply a persentation scheme, press Fn+F7 at least three times in three seconds, and the image is displayed on the computer screen.

**Problem:**
The computer does not return from standby mode, or the standby indicator stays on and the computer does not work.

**Solution:**
If the system does not return from standby mode, it may have entered standby or hibernation mode automatically because the battery is depleted. Check the standby indicator.
- If the standby indicator is on, your computer is in standby mode. Connect the ac adapter to the computer; then press Fn.
- If the standby indicator is off, your computer is in hibernation mode or power-off state. Connect the ac adapter to the computer; then press power button to resume operation.

If the system still does not return from standby mode, your system may stop responding and you cannot turn off the computer. In this case, you need to reset the computer. If you have not saved your data, it may be lost. To reset the computer, press and hold the power button for 4 seconds or more. If the system is still not reset, remove the ac adapter and the battery.

**Problem:**
Your computer does not enter standby or hibernation mode.

**Solution:**
Check whether any option has been selected that would disable your computer from entering standby or hibernation mode.

**Problem:**
The system does not wake up at the time set on the timer, if the computer is not connected to an ac power source,

–or–

The system does not enter hibernation mode from suspend mode if the computer is not connected to an ac power source.

**Solution:**
The timer-wake-with-battery-operation is disabled by default. If you enable this function, the computer could wake up and begin running while it is being carried; this could lead to damage to the hard disk drive.

With this risk in mind, you can enable the timer-wake-with-battery-operation.

1. Turn your computer off and then on again; then, while the message, "To interrupt normal startup, press the blue Access IBM button" is displayed at the lower left of the screen, press the Access IBM button. IBM Rescue and Recovery screen opens.
2. Click **Access BIOS**. The System Restart Required window is displayed.
3. Click **Yes**. The computer restarts, and the IBM BIOS Setup Utility menu appears.
4. With the cursor key, select **Config**; then press Enter. The **Power** submenu is displayed.
5. Select **Timer Wake with Battery Operation** by pressing Enter.
6. With the F5 or F6 key, select **Enabled**; then press Enter.
7. Press F10 and Enter to save this setting and exit this utility.

For information about the BIOS Setup Utility, see "IBM BIOS Setup Utility" in Access IBM, your on-board help system.

**Problem:**
The Fn+F12 key combination does not cause the computer to enter hibernation mode.

**Solution:**
The computer cannot enter hibernation mode:

- If you are using one of the IBM communication PC Cards. To enter hibernation mode, stop the communication program, and then remove the PC Card or disable the PC Card slot. Click the **Safely Remove Hardware** icon in the taskbar (for Windows XP) or the **Unplug or Eject Hardware** icon in the taskbar (for Windows 2000).
- If the hibernation mode is not enabled. To enable it, do as follows:

**For Windows XP or Windows 2000 :**
1. Start the ThinkPad Configuration Program.
2. Click **Power Management**.
3. Click the **Hibernate** tab.
4. Select the hibernate support checkbox.
5. Click OK.

**Note:** You can enter hibernation mode by pressing Fn+F12 only if the PM driver for Windows 2000 or Windows XP has been installed.

**Problem:**
Under Windows XP, the Fn+F3 key combination does not make the computer screen go blank.

**Solution:**
Windows XP enables multiple users to log on to the system at the same time. If you are the first user to have logged on to your computer, you can use the Fn+F3 key combination. Otherwise the combination will not work on your computer.

## Computer screen problems

**Problem:**
The screen is blank.

**Solution:**
- Press Fn+F7 to bring up the image.

  **Note:** If you use the Fn+F7 key combination to apply a presentation scheme, press Fn+F7 at least three times in three seconds, and the image is displayed on the computer screen.
- If you are using the AC adapter, or using the battery, and the battery status indicator is on (is green), press Fn+Home to make the screen brighter.
- If the standby status indicator is on (is green), press Fn to resume from the standby mode.
- If you still have the problem persists, do the Solution in the problem below.

**Problem:**
The screen is unreadable or distorted.

**Solution:**
Make sure that:
- The display device driver is installed correctly.
- The screen resolution and color quality are correctly set.
- The monitor type is correct.

To check these settings, do as follows:

**For Windows XP and Windows 2000:**
1. Right-click on the desktop, click **Properties**, then click the **Settings** tab.
2. Check whether the screen resolution and color quality are correctly set.
3. Click **Advanced**.
4. Click the **Adapter** tab.

5. Make sure "Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family" is shown in the adapter information window.
6. Click the **Properties** button. Check the "Device status" box and make sure the device is working properly. If not, click the **Troubleshooter** button.
7. Click the **Monitor** tab.
8. Make sure the information is correct.
9. Click the **Properties** button. Check the "Device status" box and make sure the device is working properly. If not, click the **Troubleshooter** button.

**Problem:**

The screen stays on even after you turn off your computer.

**Solution:**

Press and hold the power switch for 4 seconds or more to turn off your computer; then turn it on again.

**Problem:**

Missing, discolored, or bright dots appear on the screen every time you turn on your computer.

**Solution:**

This is an intrinsic characteristic of the TFT technology. Your computer's display contains multiple thin-film transistors (TFTs). A small number of missing, discolored, or bright dots on the screen might exist all the time.

## Battery problems

**Problem:**

The battery cannot be fully charged by the power-off method in the standard charge time for your computer.

**Solution:**

The battery might be over-discharged. Do the following:
1. Turn off the computer.
2. Make sure that the over-discharged battery is in the computer.
3. Connect the ac adapter to the computer and let it charge.

If the battery cannot be fully charged in 24 hours, use a new battery.

If the optional Quick Charger is available, use it to charge the over-discharged battery.

**Problem:**

Your computer shuts down before the battery status indicator shows empty, *-or-* Your computer operates after the battery status indicator shows empty.

**Solution:**

Discharge and recharge the battery.

**Problem:**
The operating time for a fully charged battery is short.

**Solution:**
Discharge and recharge the battery. If your battery's operating time is still short, use a new battery.

**Problem:**
The computer does not operate with a fully charged battery.

**Solution:**
The surge protector in the battery might be active. Turn off the computer for one minute to reset the protector; then turn on the computer again.

**Problem**
The battery does not charge.

**Solution**
You cannot charge the battery when it is too hot. If the battery feels hot, remove it from the computer and allow it to cool to room temperature. After it cools, reinstall it and recharge the battery. If it still cannot be charged, have it serviced.

## Hard disk drive problems

**Problem:**
The hard disk drive makes a rattling noise intermittently.

**Solution:**
The rattling noise might be heard when:
- The hard disk drive starts accessing the data or when it stops.
- You are carrying the hard disk drive.
- You are carrying your computer.

This is a normal characteristic of a hard disk drive and is not a defect.

**Problem:**
The hard disk drive does not work.

**Solution:**
In the startup menu in BIOS Setup Utility, make sure that the hard disk drive is in the "Boot priority order". If it is in the device list of "Excluded from boot order", the hard disk drive is disabled. Move it into the "Boot priority order".

## A startup problem

**Problem:**
The Microsoft® Windows® operating system will not start.

**Solution:**
Use the IBM Rescue and Recovery workspace to help solve or identify your problem. Starting the IBM Rescue and Recovery workspace is easy.

To open IBM Rescue and Recovery, do the following:
1. Turn off your PC, then turn it on again.
2. Watch the screen carefully while your PC starts. When "To interrupt normal startup, press the blue Access IBM button" message is displayed at the lower left of the screen, press the blue Access IBM button. The IBM Rescue and Recovery workspace opens. A window such as this will appear:
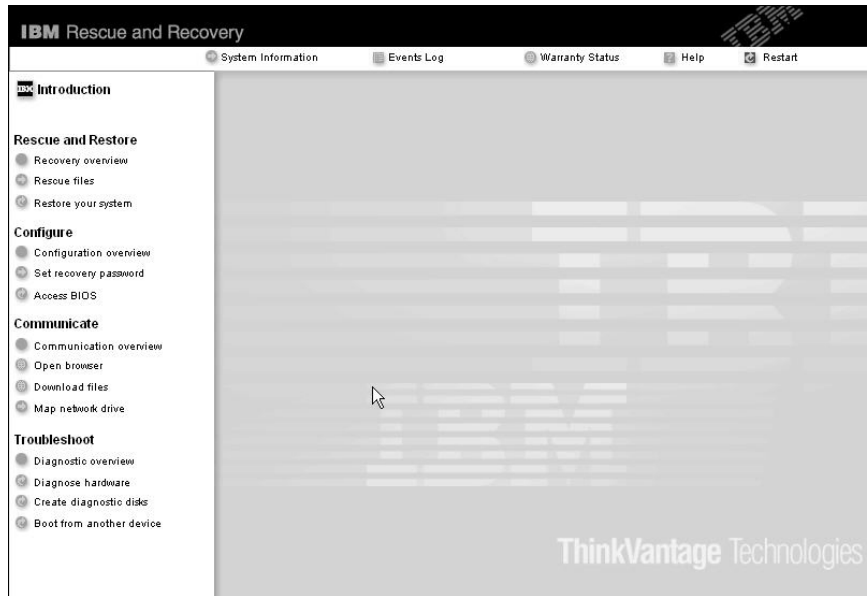


3. After the Rescue and Recovery workspace opens, you can do the following:
   - **Rescue and Restore** your files, folders, or backups.
   - **Configure** your system settings and passwords.
   - **Communicate** by using the internet and link to the IBM support site.
   - **Troubleshoot** and diagnose problems using diagnostics.

In the top panel of the IBM Rescue and Recovery workspace, you can click the following to open other pages or exit the utility:

**Events Log** enables you to view a log that contains information about events, or tasks, associated with Rescue and Recovery™ operations.

**System Information** enables you to see key hardware and software information about your computer. This information might be valuable when trying to diagnose problems.

**Warranty Status** enables you to see when your warranty expires, the terms of service for your computer, or a list of replacement parts.

**Help** provides information about the various pages in the IBM Rescue and Recovery workspace.

**Restart** closes the IBM Rescue and Recovery workspace, and resumes the startup sequence that was interrupted.

## Fingerprint authentication problems

If your finger(s) have any of the following conditions, you may not be able to register or authenticate it:

- Your finger is wrinkled.
- Your finger is rough, dry or injured.
- Your finger is very dry.
- Your finger is stained with dirt, mud, or oil.
- The surface of your finger is very different from when you registered your fingerprint.
- Your finger is wet.
- A finger is used that has not been enrolled.

To improve the situation, try the following:

- Clean or wipe your hands to remove any excess dirt or moisture from the fingers.
- Enroll and use a different finger for authentication.
- If your hands are too dry, apply lotion to them.

## Other problems

**Problem:**
The computer locks or does not accept any input.

**Solution:**
Your computer might lock when it enters standby mode during a communication operation. Disable the standby timer when you are working on the network.

To turn off the computer, press and hold the power switch for 4 seconds or more.

**Problem:**
The computer does not start from a device you want, such as a diskette drive.

**Solution:**
Refer to the Startup menu of the IBM BIOS Setup Utility. Make sure that the startup sequence in the IBM BIOS Setup Utility is set so that the computer starts from the device you want.

Also make sure that the device from which the computer starts is enabled. In the startup menu in the IBM BIOS Setup Utility, make sure that the device is included in the "Boot priority order" list. If it is included in the

"Excluded from boot order" list, it is disabled. Select the entry for it in the list and press the x key. This moves the entry to the "Boot priority order" list.

**Problem:**
The computer does not respond.

**Solution:**
IRQs for the PCI are all set as 11. The computer does not respond because it cannot share the IRQ with other devices. Refer to the ThinkPad Configuration Program.

**Problem:**
The computer can not play a CD, or the sound quality is not good.

**Solution:**
Be sure that the disk meets the standards for your country. Usually, a disk that meets the local standards is marked with a CD logo on the label. If you use a disc that does not meet these standards, we cannot guarantee that it will play, or that, if it does play, the sound quality will be good.

COMPACT
disc
DIGITAL AUDIO

**Problem:**
Playback of DVD is not smooth in Windows 2000.

**Solution:**
If you select the Maximum Battery mode for the Intel SpeedStep™ technology, this problem may occur. This mode is designed to achieve maximum battery life by switching the processor speed between the regular low speed and half of that speed, depending on how much the processor is used. If the use increases, Intel SpeedStep switches the processor speed to the lower speed. Operation in this mode can severely degrade the performance of the processor, and thus cause the playback of a DVD to be jerky.

To avoid or reduce this problem, you can choose any of three other modes of operation, as follows:

- **Maximum Performance:** Keeps the processor speed high at all times.
- **Automatic:** Switches the processor speed between high and low, depending on how much the processor is used. If the use increases, Intel SpeedStep switches the processor speed to high.
- **Battery Optimized Performance:** Keeps the processor speed low at all times.

To choose a mode, do the following:
1. Start the ThinkPad Configuration Program.

2. Click **Power Management**.
3. Click the **Intel SpeedStep technology** tab.
4. From the list, select the mode you want.
5. Click **OK**.

**Problem:**

If your operating system is Windows 2000 and you are using a USB 1.x device, then when your computer returns from standby or hibernation mode to normal operation, the "Unsafe Removal of Device" message may appear.

**Solution:**

You can safely close this message. It is displayed because of the USB 2.0 driver problem on Windows 2000. You can get detailed information in the More Information section of the Microsoft Knowledge Base 328580 and 323754. Visit the Microsoft Knowledge Base homepage at http://support.microsoft.com/, type the number of the knowledge base article you need in the search field, and click the Search button.

## Starting IBM BIOS Setup Utility

Your computer provides a program, called IBM BIOS Setup Utility, that enables you to select various setup parameters.

- Config: Set the configuration of your computer.
- Date/Time: Set the date and time.
- Security: Set security features.
- Startup: Set the startup device.
- Restart: Restart the system.

**Note:** You can set many of these parameters more easily by using the ThinkPad Configuration Program.

To start IBM BIOS Setup Utility, do as follows:

1. To protect yourself against accidental loss of data, back up your data and computer registry. For details see "Data backup-and-restore tools" in Access IBM, your on-board help.
2. Remove any diskette from the diskette drive, and then turn off the computer.
3. Turn on the computer; then, while the "To interrupt normal startup, press the blue Access IBM button" message is displayed at the lower-left of the screen, press the Access IBM button. The IBM Rescue and Recovery workspace opens.
4. Click **Access BIOS**. The System Restart Required window is displayed.
5. Click **Yes**. The computer restarts, and IBM BIOS Setup Utility screen appears.

If you have set a supervisor password, the IBM BIOS Setup Utility menu appears after you enter the password. You can start the utility by pressing Enter instead of entering the supervisor password; however, you cannot change the parameters that are protected by the supervisor password. For more information, refer to the on-board help.

6. Using the cursor keys, move to an item you want to change. When the item you want is highlighted, press Enter. A submenu is displayed.

7. Change the items you wish to change. To change the value of an item, use the F5 or F6 key. If the item has a submenu, you can display it by pressing Enter.

8. Press F3 or Esc to exit from the submenu. If you are in a nested submenu, press Esc repeatedly until you reach the IBM BIOS Setup Utility menu.

   **Note:**If you need to restore the settings to their original state as of the time of purchase, press F9 key to load the default settings. You can also select an option in the Restart submenu to load the default settings or discard the changes.

9. Select Restart; then press Enter. Move the cursor to the option you want for restarting your computer; then press Enter. Your computer restarts.

## Recovering pre-installed software

Your computer hard disk has a hidden, protected area for backups. Contained within this area is a complete backup of the hard disk as it was shipped from the factory and a program called the IBM Rescue and Recovery.

If you performed a backup operation using the Rescue and Recovery program, you also have one or more backups stored that reflect the contents of the hard disk, as it existed at various points in time. These backups might be stored on your hard disk, or a network drive, or on removable media, depending on the options you selected during the backup operation.

You can use either the Rescue and Recovery program or the IBM Rescue and Recovery workspace to restore the contents of the hard disk to an earlier state using any of the stored backups. The IBM Rescue and Recovery workspace runs independently of the Windows operating system. Therefore, you can start it by pressing the blue Access IBM button when prompted during startup.

After the Rescue and Recovery workspace opens you can perform a recovery operation, even if you are unable to start Windows. For more information about using Rescue and Recovery features, see "Data backup-and-restore tools" or "Introducing Rescue and Recovery" in Access IBM.

To recover the hard disk to its original contents, do the following:

**Notes:**

1. If the optical drive is not attached to your ThinkPad computer during recovery, DVD software and CD-recording software will not be installed. To ensure that they will be installed correctly, attach your ThinkPad computer to the X4 UltraBase Dock and install the optical drive in the Ultrabay Slim before performing a recovery operation.
2. The recovery process might take up to 2 hours.

**Attention:** All of the files on the primary hard disk partition (usually drive C) will be lost in the recovery process. However, before any data is overwritten, you will be given the opportunity to save one or more files to other media.

1. If possible, save all your files and shut down your operating system.
2. Turn off your computer for at least 5 seconds.
3. Turn on your computer. Watch the display carefully. While the message, "To interrupt normal startup, press the blue Access IBM button" is displayed at the lower left of the screen, press the Access IBM button. The IBM Rescue and Recovery workspace opens.
4. Click **Restore your system**.
5. Click **Restore my hard drive to the original factory state** and then click **Next**.
6. Follow the instructions on the screen.
7. When the recovery process finishes, press Enter key. Your computer will restart with the pre-installed operating system, drivers, and software.

## Upgrading the hard disk drive

You can increase the storage capacity of your computer by replacing the hard disk drive with one of greater capacity. You can purchase a new hard disk drive from your IBM reseller or IBM marketing representative.

**Notes:**

1. Replace the hard disk drive only if you upgrade it or have it repaired. The connectors and bay of the hard disk drive were not designed for frequent changes, or drive swapping.
2. The IBM Rescue and Recovery workspace and the Product Recovery program are not included in the optional hard disk drive.

> **Attention**
>
> **Handling a hard disk drive**
>
> - Do not drop the drive or subject it to physical shocks. Put the drive on a material, such as soft cloth, that absorbs the physical shock.
> - Do not apply pressure to the cover of the drive.
> - Do not touch the connector.
>
> The drive is very sensitive. Incorrect handling can cause damage and permanent loss of data on the hard disk. Before removing the hard disk drive, make a backup copy of all the information on the hard disk, and then turn the computer off. Never remove the drive while the system is operating, in standby mode, or in hibernation mode.

To replace the hard disk drive, do the following.

1. **Turn off the computer**; then disconnect the ac adapter and all cables from the computer.
2. Close the computer display, and turn the computer over.
3. Remove the battery.
4. Remove the screw that secures the hard disk drive.
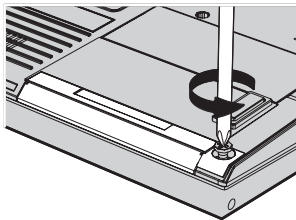


5. Open the computer display; then stand the computer on its side and remove the hard disk drive by pulling the cover away from the computer.
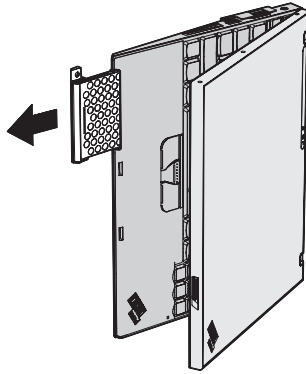
6. Detach the cover from the hard disk drive.
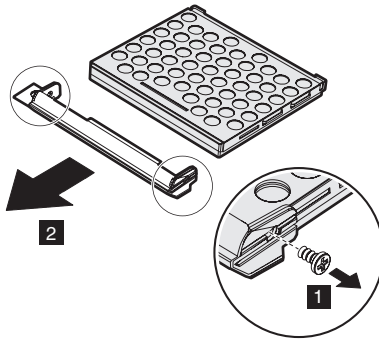
7. Attach the cover to a new hard disk drive.
8. Insert the hard disk drive and its cover into the hard disk drive bay; then firmly install them.
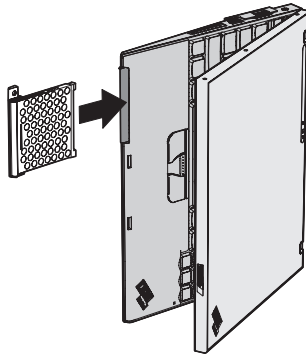
9. Close the computer display and turn the computer over so that its bottom side is up.
10. Reinstall the screw.
11. Reinstall the battery.

12. Turn the computer over again. Connect the ac adapter and the cables to the computer.

## Replacing the battery

1. **Turn off the computer, or enter hibernation mode.** Then disconnect the ac adapter and all cables from the computer.

   **Note:** If you are using a PC Card or Secure Digital Card, the computer might not be able to enter hibernation mode. If this happens, turn off the computer.

2. Close the computer display, and turn the computer over.

3. Slide the battery lock to the unlock position.
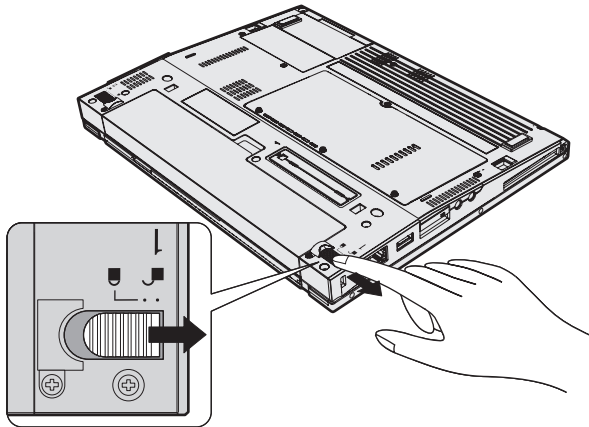


4. Slide and hold the battery latch **1** ; then remove the battery **2** .
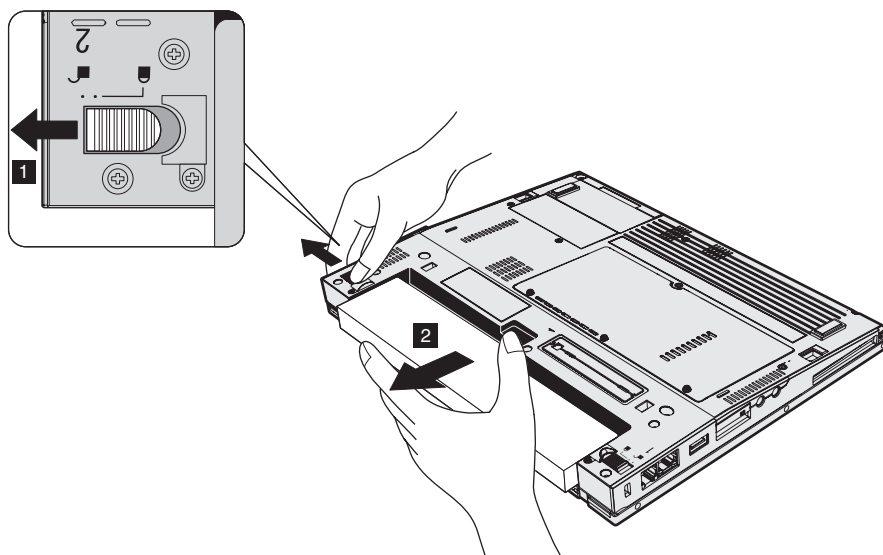
5. Align the front of a fully charged spare battery with the front side of the battery space in the computer; then gently push the battery into the space.
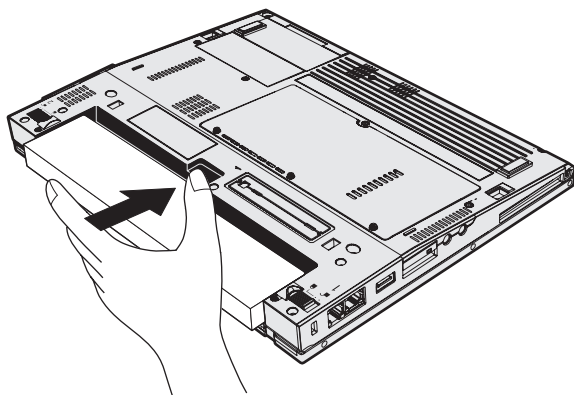


6. Slide the battery lock to the lock position.
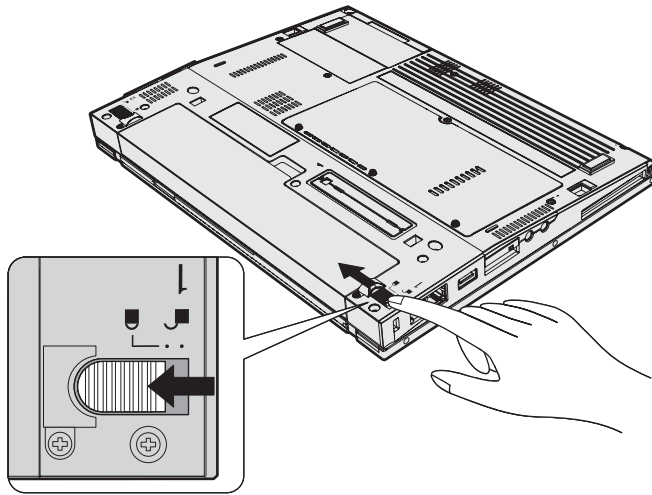
7. Turn the computer over again. Connect the ac adapter and the cables to the computer.

*Replacing the battery*

# Chapter 3. Getting help and service from IBM

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## Getting help and service

If you need help, service, technical assistance, or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your computer, and whom to call for service should it be necessary.

Microsoft Service Packs are the latest software source for Windows product updates. They are available via Web download (connection charges may apply) or via CD-ROM. For more specific information and links, please go to www.microsoft.com. IBM offers Up and Running technical assistance with installation of, or questions related to, Service Packs for your IBM preloaded Microsoft Windows product. For information please contact the IBM Support Center at the phone number(s) listed on page 69.

## Getting help on the Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM Personal Computer products and support. The address for the IBM Personal Computing home page is www.ibm.com/pc

IBM provides an extensive Web site dedicated to mobile computing and to ThinkPad computers at www.ibm.com/pc/support. Research this Web site to learn how to solve problems, find new ways to use your computer, and learn about options that can make working with your ThinkPad computer even easier.

## Calling IBM

If you have tried to correct the problem yourself and still need help, during the warranty period, you can get help and information by telephone through the IBM Support Center. The following services are available during the warranty period:

- Problem determination - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- IBM hardware repair - If the problem is determined to be caused by IBM hardware under warranty, trained service personnel are available to provide the applicable level of service.
- Engineering change management - Occasionally, there might be changes that are required after a product has been sold. IBM or your reseller, if authorized by IBM, will make selected Engineering Changes (ECs) available that apply to your hardware.

The following items are not covered:
- Replacement or use of non-IBM parts or nonwarranted IBM parts

    **Note:** All warranted parts contain a 7-character identification in the format IBM FRU XXXXXXX
- Identification of software problem sources
- Configuration of BIOS as part of an installation or upgrade
- Changes, modifications, or upgrades to device drivers
- Installation and maintenance of network operating systems (NOS)
- Installation and maintenance of application programs

Refer to your IBM hardware warranty for a full explanation of IBM warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

If possible, be near your computer when you make your call in case the technical assistance representative needs to help you resolve a computer problem. Please ensure that you have downloaded the most current drivers and system updates, run diagnostics, and recorded information before you call. When calling for technical assistance, please have the following information available:
- Machine Type and Model
- Serial numbers of your computer, monitor, and other components, or your proof of purchase
- Description of the problem
- Exact wording of any error messages
- Hardware and software configuration information for your system

**Telephone numbers**

**Note:** Telephone numbers are subject to change without notice. For the latest list of IBM Support Center telephone numbers and hours of operation, visit the Support Web site at **www.ibm.com/pc/support**

| Country or region | Language | Telephone Number |
|---|---|---|
| Africa | | Africa +44 (0)1475 555 055<br><br>South Africa<br>+27 11 3028888<br>0800110756<br><br>Central Africa: contact the nearest IBM Business Partner |
| Argentina | Spanish | 0800-666-0011 |
| Australia | English | 131-426 |

| Country or region | Language | Telephone Number |
|---|---|---|
| Austria | German | +43-1-24592-5901 |
| Belgium | Dutch | 02-210 9820 |
| | French | 02-210 9800 |
| Bolivia | Spanish | 0800-0189 |
| Brazil | Portuguese | 55-11-3889-8986 |
| Canada | English/French | 1-800-565-3344<br><br>in Toronto only call 416-383-3344 |
| Chile | Spanish | 800-224-488 |
| China | Mandarin | 800-810-1818 |
| China (Hong Kong S.A.R.) | Cantonese<br><br>English<br><br>Putonghua | Home PC 852-2825-7799<br><br>Commercial PC 852-8205-0333<br><br>ThinkPad and WorkPad 852–2825–6580 |
| Colombia | Spanish | 1-800-912-3021 |
| Costa Rica | Spanish | 284-3911 |
| Cyprus | | 357-22-841100 |
| Czech Republic | | 420-2-7213-1316 |
| Denmark | Danish | 4520-8200 |
| Dominican Republic | Spanish | 566-4755<br><br>566-5161 ext 8201<br><br>1-200-1929 (Toll-free within Dominican Republic |
| Ecuador | Spanish | 1-800-426911 |
| El Salvador | Spanish | 250-5696 |
| Estonia | | 386-61-1796-699 |
| Finland | Finnish | +358-9-459-6960 |
| France | French | +33-238-557-450 |
| Germany | German | +49-7032-1549 201 |
| Greece | | 30-210-680-1700 |
| Guatemala | Spanish | 335-8490 |

| Country or region | Language | Telephone Number |
|---|---|---|
| Honduras | Spanish | Tegucigalpa & San Pedro Sula 232-4222<br><br>San Pedro Sula 552-2234 |
| Hungary | | 36-1-382-5720 |
| India | English | 1600-44-6666 |
| Indonesia | Bahasa/Indonesian /English | 800-140-3555 |
| Ireland | English | +353-(0)1-815 9200 |
| Italy | Italian | +39-02-7031-6101 |
| Japan | Japanese | 0120-887-874<br><br>Overseas calls 81-46-266-4724 |
| Korea | Korean | 82-2-3284-1500 |
| Latvia | | 386-61-1796-699 |
| Lithuania | | 386-61-1796-699 |
| Luxembourg | French | +352-298-977 5063 |
| Malaysia | English | 1800-88-8558 |
| Malta | | 356-23-4175 |
| Mexico | Spanish | 001-866-434-2080 |
| Middle East | | +44 (0)1475 555 055 |
| Netherlands | Dutch | +31-20-514 5770 |
| New Zealand | English | 0800-446-149 |
| Nicaragua | Spanish | 255-6658 |
| Norway | Norwegian | NetVista, ThinkCentre, and ThinkPad+47 6699 8960<br><br>All products +47 815 21550 |
| Panama | Spanish | 206-6047 |
| Peru | Spanish | 0-800-50-866 |
| Philippines | English | 1800-1888-1426 |
| Poland | | +48-22-878-6999 |
| Portugal | Portuguese | +351-21-892-7147 |
| Russia | Russian | +7-095-940-2000 |
| Singapore | English | 1800-3172-888 |
| Slovakia | | 421-2-4954-1217 |

| Country or region | Language | Telephone Number |
|---|---|---|
| Slovenia | | +386-1-5830-050 |
| Spain | Spanish | +34-91-714-7983 |
| Sri Lanka | English | +94-11-2448-442 |
| | | +94-11-2421-066 |
| | | +94-11-2493-500 |
| Sweden | Swedish | +46-8-477-4420 |
| Switzerland | German/French/Italian | +41-583-33-09-71 |
| Taiwan | Mandarin | 886-2-8723-9799 |
| Thailand | Thai | 1800-299-229 |
| Turkey | Turkish | 00800-211-4032 |
| | | +90-212-317-1760 |
| United Kingdom | English | +44-1475-555 055 |
| United States | English | 1-800-IBM-SERV (1-800-426-7378) |
| Uruguay | Spanish | 000-411-005-6649 |
| Venezuela | Spanish | 0-800-100-2011 |
| Vietnam | English/Vietnamese | Ho Chi Minh(84)8-824-1474 |
| | | Hanoi (84)4-842-6316 |

## Getting help around the world

If you travel with your computer or relocate it to a country where your
ThinkPad machine type is sold and serviced by IBM or by IBM resellers who
are authorized to perform warranty service, International Warranty Service is
available for your computer.

Service methods and procedures vary by country, and some services might
not be available in all countries. International Warranty Service is delivered
through the method of service (such as depot, carry-in, or on-site service) that
is provided in the servicing country. Service centers in certain countries might
not be able to service all models of a particular machine type. In some
countries, fees and restrictions might apply at the time of service.

To determine whether your computer is eligible for International Warranty
Service and to view a list of the countries where service is available, go to
www.ibm.com/pc/support, and click **Warranty**. Eligible IBM computers are
identified by their four-digit machine types. For more information about

International Warranty Service, see Service Announcement 601-034 at www.ibm.com.

# Appendix A. Wireless related information

## Wireless Interoperability

Wireless LAN Mini-PCI Adapter is designed to be interoperable with any wireless LAN product that is based on Direct Sequence Spread Spectrum (DSSS) radio technology and/or Orthogonal Frequency Division Multiplexing (OFDM) radio technology, and is compliant to:

- The IEEE 802.11a/b/g Standard on Wireless LANs, as defined and approved by the Institute of Electrical and Electronics Engineers.
- The Wireless Fidelity (WiFi) certification as defined by the WECA (Wireless Ethernet Compatibility Alliance).

*Bluetooth* Daughter Card is designed to be interoperable with any *Bluetooth* product that is compliant to *Bluetooth* Specification 1.1 and 1.2 as defined by the *Bluetooth* SIG. Following profiles are supported by *Bluetooth* Daughter Card:

- Generic Access
- Service Discovery
- Serial Port
- Dialup Networking
- FAX
- LAN Access using PPP
- Personal Area Network
- Generic Object Exchange
- Generic Object Push
- File Transfer
- Synchronization
- Audio Gateway
- Headset
- Printer
- Human Interface Device (Keyboard/Mouse)
- Basic Image
- Handsfree

## Usage environment and your Health

Wireless LAN Mini-PCI Adapter and *Bluetooth* Daughter Card emit radio frequency electromagnetic energy like other radio devices. However, the level of energy emitted is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Because Wireless LAN Mini-PCI Adapter and *Bluetooth* Daughter Card operate within the guidelines found in radio frequency safety standards and recommendations, IBM believes the integrated wireless cards are safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situation or environment, the use of Wireless LAN Mini-PCI Adapter and *Bluetooth* Daughter Card may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

- Using the integrated wireless cards on board of airplanes, or in hospitals
- In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organization (e.g. airport or hospital), you are encouraged to ask for authorization to use Wireless LAN Mini-PCI Adapter and *Bluetooth* Daughter Card prior to turning on your ThinkPad computer.

## Authorized Operation Within the United States and Canada

The statement below regarding the extended channel mode is applicable when the system supports this function. To check the support of this function, please see the property of the installed wireless card by referring to the extended channel mode enablement instruction.

For systems with 802.11b wireless function supporting Extended Channel Mode,

This device may only be used with Access Points, which are authorized for use within the geography in which they are being used. The use of this device with an Access Point that is not Wi-Fi compliant and not authorized to be used in your geography could result in violation of government regulations. Consult the network administrator, the instruction manual, or the approval label for the Access Point to determine the authorization of your Access Point in your specific country or geographic region.

"Extended Channel Mode" should only be selected when the device is operated outside the USA and Canada to avoid the unlikely possibility of unauthorized operation. The use of this device outside the United States and Canada in "Extended Channel Mode" may use frequencies not authorized for use in the United States and Canada. When used with an authorized Wireless Access Point that is Wi-Fi compliant or in Ad Hoc mode, this device will operate in its authorized modes in all geographies.

Please reconfigure selected frequencies when you travel from one country to another.

## Enabling Extended Channel Mode

The statement below regarding the extended channel mode is applicable when the system supports this function. To check the support of this function, please see the property of the installed wireless card by referring to the extended channel mode enablement instruction.

In countries other than the United States and Canada, extra IEEE 802.11b channels may be supported. If you have a problem to connect an Access Point, please contact your system administrator or check your Access Point to know which channel is used. And if the 802.11b channel is 12 or greater, you will need to enable "Extended Channel Mode" with next steps.

1. Start Windows 2000/XP. Logon with administrative privileges.
2. Right mouse click on My computer on Desktop and select Property.
3. Click on Hardware Tab and push Device Manager Button.
4. Click on Network Adapter, locate a wireless adapter device, right mouse click on the device and select Property.
5. Click on Advanced Tab.
6. Select "Extended Channel Mode" and set the value to "Enable".

**Note:** This will be applied for systems with 802.11b wireless function supporting Extended Channel Mode.

# Appendix B. Warranty information

This appendix contains warranty information for your ThinkPad, warranty period, warranty service and support, and the IBM Statement of Limited Warranty.

## IBM Statement of Limited Warranty Z125-4753-08 04/2004

### Part 1 - General Terms

*This Statement of Limited Warranty includes Part 1 - General Terms, Part 2 - Country-unique Terms, and Part 3 - Warranty Information. The terms of Part 2 replace or modify those of Part 1. The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise.* **Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract.**

**What this Warranty Covers**
*IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications ("Specifications") which are available on request. The warranty period for the Machine starts on the original Date of Installation and is specified in Part 3 - Warranty Information. The date on your invoice or sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part. Unless IBM specifies otherwise, these warranties apply only in the country or region in which you purchased the Machine.*

**THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD. SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.**

**What this Warranty Does not Cover**
This warranty does not cover the following:

- any software programs, whether pre-loaded or shipped with the Machine, or installed subsequently;
- failure resulting from misuse (including but not limited to use of any Machine capacity or capability, other than that authorized by IBM in writing), accident, modification, unsuitable physical or operating environment, or improper maintenance by you;
- failure caused by a product for which IBM is not responsible; and
- any non-IBM products, including those that IBM may procure and provide with or integrate into an IBM Machine at your request.

The warranty is voided by removal or alteration of identification labels on the Machine or its parts.

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

Any technical or other support provided for a Machine under warranty, such as assistance with "how-to" questions and those regarding Machine set-up and installation, is provided **WITHOUT WARRANTIES OF ANY KIND**.

### How to Obtain Warranty Service
If the Machine does not function as warranted during the warranty period, contact IBM or your reseller to obtain warranty service. If you do not register the Machine with IBM, you may be required to present proof of purchase as evidence of your entitlement to warranty service.

### What IBM Will Do to Correct Problems
When you contact IBM for service, you must follow the problem determination and resolution procedures that IBM specifies. An initial diagnosis of your problem can be made either by a technician over the telephone or electronically by access to an IBM website.

The type of warranty service applicable to your Machine is specified in Part 3 - Warranty Information.

You are responsible for downloading and installing designated Machine Code (microcode, basic input/output system code (called "BIOS"), utility programs, device drivers, and diagnostics delivered with an IBM Machine ) and other software updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

If your problem can be resolved with a Customer Replaceable Unit ("CRU") (e.g., keyboard, mouse, speaker, memory, hard disk drive), IBM will ship the CRU to you for you to install.

If the Machine does not function as warranted during the warranty period and your problem cannot be resolved over the telephone or electronically,

through your application of Machine Code or software updates, or with a CRU, IBM or your reseller, if approved by IBM to provide warranty service, will either, at its discretion, 1) repair it to make it function as warranted, or 2) replace it with one that is at least functionally equivalent. If IBM is unable to do either, you may return the Machine to your place of purchase and your money will be refunded.

IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

**Exchange of a Machine or Part**
When the warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

**Your Additional Responsibilities**
Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to:
1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:
   a. follow the service request procedures that IBM or your reseller provides;
   b. backup or secure all programs, data, and funds contained in the Machine;
   c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit IBM to fulfill its obligations; and
   d. inform IBM or your reseller of changes in the Machine's location.
4. (a) ensure all information about identified or identifiable individuals (Personal Data) is deleted from the Machine (to the extent technically possible), (b) allow IBM, your reseller or an IBM supplier to process on your behalf any remaining Personal Data as IBM or your reseller considers necessary to fulfill its obligations under this Statement of Limited Warranty (which may include shipping the Machine for such processing to other IBM service locations around the world), and (c) ensure that such processing complies with any laws applicable to such Personal Data.

**Limitation of Liability**
IBM is responsible for loss of, or damage to, your Machine only while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller are responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM for any reason. You should remove all such information from the Machine prior to its return.

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than
1.  damages for bodily injury (including death) and damage to real property and tangible personal property; and
2.  the amount of any other actual direct damages, up to the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

**UNDER NO CIRCUMSTANCES IS IBM, ITS SUPPLIERS OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING EVEN IF INFORMED OF THEIR POSSIBILITY: 1) THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, DATA; 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR 4) LOST PROFITS, BUSINESS REVENUE, GOODWILL OR ANTICIPATED SAVINGS. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.**

**Governing Law**
Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your

and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Statement of Limited Warranty, without regard to conflict of law principles.

**THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE OR JURISDICTION TO JURISDICTION.**

**Jurisdiction**
All of our rights, duties, and obligations are subject to the courts of the country in which you acquired the Machine.

## Part 2 - Country-unique Terms

### AMERICAS

**ARGENTINA**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Ordinary Commercial Court of the city of Buenos Aires.

**BOLIVIA**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the courts of the city of La Paz.

**BRAZIL**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Agreement will be settled exclusively by the court of Rio de Janeiro, RJ.

**CHILE**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Civil Courts of Justice of Santiago.

**COLOMBIA**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges of the Republic of Colombia.

**EQUADOR**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges of Quito.

**MEXICO**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled
exclusively by the Federal Courts of Mexico City, Federal District.

**PARAGUAY**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled
exclusively by the courts of the city of Asuncion.

**PERU**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled
exclusively by the Judges and Tribunals of the Judicial District of Lima,
Cercado.

**Limitation of Liability:** *The following is added at the end of this section:*In
accordance with Article 1328 of the Peruvian Civil Code the limitations and
exclusions specified in this section will not apply to damages caused by IBM's
willful misconduct ("dolo") or gross negligence ("culpa inexcusable").

**URUGUAY**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled
exclusively by the City of Montevideo Court's Jurisdiction.

**VENEZUELA**
**Jurisdiction:** *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled
exclusively by the Courts of the Metropolitan Area Of the City of Caracas.

**NORTH AMERICA**

**How to Obtain Warranty Service:** *The following is added to this Section:*
To obtain warranty service from IBM in Canada or the United States, call
1-800-IBM-SERV (426-7378).

**CANADA**
**Limitation of Liability:** *The following replaces item 1 of this section:*
1. damages for bodily injury (including death) or physical harm to real
property and tangible personal property caused by IBM's negligence; and

**Governing Law:** *The following replaces "laws of the country in which you acquired
the Machine" in the first sentence:*
laws in the Province of Ontario.

**UNITED STATES**
**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State of New York.

<u>**ASIA PACIFIC**</u>

**AUSTRALIA**
**What this Warranty Covers:** *The following paragraph is added to this Section:*
The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

**Limitation of Liability:** *The following is added to this Section:*
Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State or Territory.

**CAMBODIA AND LAOS**

**Governing Law:** *The following replaces* "laws of the country in which you acquired the Machine" *in the first sentence:*
laws of the State of New York, United States of America.

**CAMBODIA, INDONESIA, AND LAOS**
**Arbitration:** *The following is added under this heading:*
Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Singapore in accordance with the Arbitration Rules of Singapore International Arbitration Center ("SIAC Rules") then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the SIAC.

Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

**HONG KONG S.A.R. OF CHINA AND MACAU S.A.R. OF CHINA**
**Governing Law:** *The following replaces* "laws of the country in which you acquired the Machine" *in the first sentence:*
laws of Hong Kong Special Administrative Region of China.

**INDIA**
**Limitation of Liability:** *The following replaces items 1 and 2 of this Section:*
1.  liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence; and
2.  as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, the charge paid by you for the individual Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

**Arbitration:** *The following is added under this heading*
Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Bangalore, India in accordance with the laws of India then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Bar Council of India. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

**JAPAN**
**Governing Law:** *The following sentence is added to this Section:*
Any doubts concerning this Statement of Limited Warranty will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

**MALAYSIA**
**Limitation of Liability:** The word *"SPECIAL"* in item 3 of the fifth paragraph is deleted.

**NEW ZEALAND**
**What this Warranty Covers:** *The following paragraph is added to this Section:*
The warranties specified in this section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

**Limitation of Liability:** *The following is added to this Section:*
Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

**PEOPLE'S REPUBLIC OF CHINA (PRC)**
**Governing Law:** *The following replaces* "laws of the country in which you acquired the Machine" *in the first sentence:*
laws of the State of New York, United States of America (except when local law requires otherwise).

**PHILIPPINES**
**Limitation of Liability:** *Item 3 in the fifth paragraph is replaced by the following:*
SPECIAL (INCLUDING NOMINAL AND EXEMPLARY DAMAGES), MORAL, INCIDENTAL, OR INDIRECT DAMAGES FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR

**Arbitration:** The following is added: under this heading
Disputes arising out of or in connection with this Statement of Limited

Warranty shall be finally settled by arbitration which shall be held in Metro Manila, Philippines in accordance with the laws of the Philippines then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Philippine Dispute Resolution Center, Inc.. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

**SINGAPORE**
**Limitation of Liability:** *The words "**SPECIAL**" and "**ECONOMIC**" in item 3 in the fifth paragraph are deleted.*

**EUROPE, MIDDLE EAST, AFRICA (EMEA)**

*THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES:*
The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

**How to Obtain Warranty Service:**
*Add the following paragraph in **Western Europe** (Andorra, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Vatican State, and any country subsequently added to the European Union, as from the date of accession):*

The warranty for Machines acquired in Western Europe shall be valid and applicable in all Western Europe countries provided the Machines have been announced and made available in such countries.

If you purchase a Machine in one of the Western European countries, as defined above, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM, provided the Machine has been announced and made available by IBM in the country in which you wish to obtain service.

If you purchased a Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchase a Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM approved service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM approved service provider.

**Governing Law:**
*The phrase* "the laws of the country in which you acquired the Machine" is replaced by:
1) "the laws of Austria" **in Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and FR Yugoslavia;** 2) "the laws of France" **in Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna;** 3) "the laws of Finland" **in Estonia, Latvia, and Lithuania;** 4) "the laws of England" **in Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, the United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe;** and 5) "the laws of South Africa" **in South Africa, Namibia, Lesotho and Swaziland.**

**Jurisdiction:** *The following exceptions are added to this section:*
1) **In Austria** the choice of jurisdiction for all disputes arising out of this Statement of Limited Warranty and relating thereto, including its existence, will be the competent court of law in Vienna, Austria (Inner-City); 2) **in Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, West Bank/Gaza, Yemen, Zambia, and Zimbabwe** all disputes arising out of this Statement of Limited Warranty or related to its execution, including summary proceedings, will be submitted to the exclusive jurisdiction of the English courts; 3) in **Belgium** and **Luxembourg**, all disputes arising out of this Statement of Limited Warranty or related to its interpretation or its execution, the law, and the courts of the capital city, of the country of your registered office and/or commercial site location only are competent; 4) **in France, Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna** all disputes arising out of this Statement of Limited Warranty or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 5) in **Russia**, all disputes arising out of or in relation to the interpretation, the violation, the termination, the nullity of the execution of this Statement of Limited Warranty shall be settled by Arbitration Court of Moscow; 6) **in South Africa, Namibia, Lesotho and Swaziland**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the High Court in Johannesburg; 7) **in Turkey** all disputes arising out of or in connection with this Statement of Limited Warranty shall be resolved by the Istanbul Central (Sultanahmet) Courts and Execution Directorates of Istanbul, the Republic of Turkey; 8) in each of the following specified countries, any legal claim arising out of this Statement of Limited Warranty will be brought before, and settled exclusively by, the competent court of a) Athens for **Greece**, b) Tel Aviv-Jaffa for **Israel**, c) Milan for **Italy**, d) Lisbon for **Portugal**, and e) Madrid for **Spain**; and 9) **in the United Kingdom**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the English courts.

**Arbitration:** *The following is added under this heading:*
**In Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and FR Yugoslavia** all disputes arising out of this Statement of Limited Warranty or related to its violation,

termination or nullity will be finally settled under the Rules of Arbitration and Conciliation of the International Arbitral Center of the Federal Economic Chamber in Vienna (Vienna Rules) by three arbitrators appointed in accordance with these rules. The arbitration will be held in Vienna, Austria, and the official language of the proceedings will be English. The decision of the arbitrators will be final and binding upon both parties. Therefore, pursuant to paragraph 598 (2) of the Austrian Code of Civil Procedure, the parties expressly waive the application of paragraph 595 (1) figure 7 of the Code. IBM may, however, institute proceedings in a competent court in the country of installation.

**In Estonia, Latvia and Lithuania** all disputes arising in connection with this Statement of Limited Warranty will be finally settled in arbitration that will be held in Helsinki, Finland in accordance with the arbitration laws of Finland then in effect. Each party will appoint one arbitrator. The arbitrators will then jointly appoint the chairman. If arbitrators cannot agree on the chairman, then the Central Chamber of Commerce in Helsinki will appoint the chairman.

**EUROPEAN UNION (EU)**

*THE FOLLOWING TERMS APPLY TO ALL EU COUNTRIES:*
The warranty for Machines acquired in EU countries is valid and applicable in all EU countries provided the Machines have been announced and made available in such countries.
**How to Obtain Warranty Service:** *The following is added to this section:*
To obtain warranty service from IBM in EU countries, see the telephone listing in Part 3 - Warranty Information.
You may contact IBM at the following address:
IBM Warranty & Service Quality Dept.
PO Box 30
Spango Valley
Greenock
Scotland PA16 0AH

**CONSUMERS**
Consumers have legal rights under applicable national legislation governing the sale of consumer goods. Such rights are not affected by the warranties provided in this Statement of Limited Warranty.

**AUSTRIA, DENMARK, FINLAND, GREECE, ITALY, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN AND SWITZERLAND**
**Limitation of Liability:** *The following replaces the terms of this section in its entirety:*
Except as otherwise provided by mandatory law:
1. IBM's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection

with this Statement of Limited Warranty or due to any other cause related to this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if IBM is at fault) or of such cause, for a maximum amount equal to the charges you paid for the Machine. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which IBM is legally liable.

2.  **UNDER NO CIRCUMSTANCES IS IBM, ITS SUPPLIERS OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

**FRANCE AND BELGIUM**
**Limitation of Liability:** *The following replaces the terms of this section in its entirety:*
Except as otherwise provided by mandatory law:

1. IBM's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if IBM is at fault), for a maximum amount equal to the charges you paid for the Machine that has caused the damages. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which IBM is legally liable.

2.  **UNDER NO CIRCUMSTANCES IS IBM, ITS SUPPLIERS OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

**THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:**

**AUSTRIA**

**The provisions of this Statement of Limited Warranty replace any applicable statutory warranties.**

**What this Warranty Covers:** *The following replaces the first sentence of the first paragraph of this section:*
The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

*The following paragraphs are added to this section:*
The limitation period for consumers in action for breach of warranty is the statutory period as a minimum. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

*The second paragraph does not apply.*

**What IBM Will Do to Correct Problems:** *The following is added to this section:*
During the warranty period, IBM will reimburse you for the transportation charges for the delivery of the failing Machine to IBM.

**Limitation of Liability:** *The following paragraph is added to this section:*
The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

*The following sentence is added to the end of item 2:*
IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

**EGYPT**

**Limitation of Liability:** *The following replaces item 2 in this section:*
as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

*Applicability of suppliers and resellers (unchanged).*

**FRANCE**

**Limitation of Liability:** *The following replaces the second sentence of the first paragraph of this section:*
In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

**GERMANY**
**What this Warranty Covers:** *The following replaces the first sentence of the first paragraph of this section:*
The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

*The following paragraphs are added to this section:*
The minimum warranty period for Machines is twelve months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

*The second paragraph does not apply.*

**What IBM Will Do to Correct Problems:** *The following is added to this section:*
During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

**Limitation of Liability:** *The following paragraph is added to this section:*
The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

*The following sentence is added to the end of item 2:*
IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

**HUNGARY**
**Limitation of Liability:** *The following is added at the end of this section:*
The limitation and exclusion specified herein shall not apply to liability for a breach of contract damaging life, physical well-being, or health that has been caused intentionally, by gross negligence, or by a criminal act.

The parties accept the limitations of liability as valid provisions and state that the Section 314.(2) of the Hungarian Civil Code applies as the acquisition price as well as other advantages arising out of the present Statement of Limited Warranty balance this limitation of liability.

**IRELAND**
**What this Warranty Covers:** *The following is added to this section:*
Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

**Limitation of Liability:** *The following replaces the terms of section in its entirety:*
For the purposes of this section, a "Default" means any act, statement, omission, or negligence on the part of IBM in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which IBM is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default occurring on the date of occurrence of the last such Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from IBM.

This section sets out the extent of IBM's liability and your sole remedy.
1. IBM will accept unlimited liability for death or personal injury caused by the negligence of IBM
2. Subject always to the **Items for Which IBM is Not Liable** below, IBM will accept unlimited liability for physical damage to your tangible property resulting from the negligence of IBM.
3. Except as provided in items 1 and 2 above, IBM's entire liability for actual damages for any one Default will not in any event exceed the greater of 1) EUR 125,000, or 2) 125% of the amount you paid for the Machine directly relating to the Default.

**Items for Which IBM is Not Liable**
Save with respect to any liability referred to in item 1 above, under no circumstances is IBM, its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:
1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

**SLOVAKIA**
**Limitation of Liability:** *The following is added to the end of the last paragraph:*
The limitations apply to the extent they are not prohibited under §§ 373-386 of the Slovak Commercial Code.

**SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND**
**Limitation of Liability:** *The following is added to this section:*
IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

**UNITED KINGDOM**
**Limitation of Liability:** *The following replaces the terms of this section is in its*

*entirety:*

For the purposes of this section, a ″Default″ means any act, statement, omission, or negligence on the part of IBM in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which IBM is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from IBM.

This section sets out the extent of IBM's liability and your sole remedy.

1. IBM will accept unlimited liability for:
   a. death or personal injury caused by the negligence of IBM; and
   b. any breach of its obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982, or any statutory modification or re-enactment of either such Section.
2. IBM will accept unlimited liability, subject always to the **Items for Which IBM is Not Liable** below, for physical damage to your tangible property resulting from the negligence of IBM.
3. IBM's entire liability for actual damages for any one Default will not in any event, except as provided in items 1 and 2 above, exceed the greater of 1) Pounds Sterling 75,000, or 2) 125% of the total purchase price payable or the charges for the Machine directly relating to the Default.

These limits also apply to IBM's suppliers and resellers. They state the maximum for which IBM and such suppliers and resellers are collectively responsible.

**Items for Which IBM is Not Liable**

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM or any of its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

## Part 3 - Warranty Information

This Part 3 provides information regarding the warranty applicable to your Machine, including the warranty period and type of warranty service IBM provides.

### Warranty Period

The warranty period may vary by country or region and is specified in the table below. NOTE: ″Region″ means either Hong Kong or Macau Special Administrative Region of China.

A warranty period of 3 years on parts and 1 year on labor means that IBM provides warranty service without charge for:

a. parts and labor during the first year of the warranty period; and b. parts only, on an exchange basis, in the second and third years of the warranty period. IBM will charge you for any labor provided in performance of the repair or replacement(s) in the second and third year of warranty period.

| Machine Type | Country or Region of Purchase | Warranty period | Types of Warranty Service |
|---|---|---|---|
| 1864 | US, Canada, Mexico, Brazil, Australia, and Japan | Parts and Labor - 4 years | 6 |
| | | Battery pack - 1 year | 1 |
| | Others | Parts and Labor - 4 years | 7 |
| | | Battery pack - 1 year | 1 |
| 1865 | All | Parts and Labor - 4 years | 5 |
| | | Battery pack - 1 year | 1 |
| 2525 | US, Canada, Mexico, Brazil, and Australia | Parts and Labor - 3 years | 6 |
| | | Battery pack - 1 year | 1 |
| | Japan | Parts and Labor - 1 year | 6 |
| | | Battery pack - 1 year | 1 |
| | Others | Parts and Labor - 3 years | 7 |
| | | Battery pack - 1 year | 1 |
| 2526 | All | Parts and Labor - 3 years | 5 |
| | | Battery pack - 1 year | 1 |
| 2527 | US and Canada | Parts and Labor - 1 year | 6 |
| | | Battery pack - 1 year | 1 |
| 2528 | US and Canada | Parts and Labor - 3 years | 6 |
| | | Battery pack - 1 year | 1 |

**Types of Warranty Service**

If required, IBM provides repair or exchange service depending on the type of warranty service specified for your Machine in the above table and as described below. Warranty service may be provided by your reseller if approved by IBM to perform warranty service. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service

levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations, additional charges may apply outside IBM's normal service area, contact your local IBM representative or your reseller for country and location specific information.

1. **Customer Replaceable Unit (″CRU″) Service**

   IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your Machine and are available from IBM at any time on your request. Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your Machine. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 30 days of your receipt of the replacement.

2. **On-site Service**

   IBM or your reseller will either repair or exchange the failing Machine at your location and verify its operation. You must provide suitable working area to allow disassembly and reassembly of the IBM Machine. The area must be clean, well lit and suitable for the purpose. For some Machines, certain repairs may require sending the Machine to an IBM service center.

3. **Courier or Depot Service ***

   You will disconnect the failing Machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your Machine to a designated service center. A courier will pick up your Machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the Machine to your location. You are responsible for its installation and verification.

4. **Customer Carry-In or Mail-In Service**

   You will deliver or mail as IBM specifies (prepaid unless IBM specifies otherwise) the failing Machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the Machine, IBM will make it available for your collection or, for Mail-in Service, IBM will return it to you at IBM's expense, unless IBM specifies otherwise. You are responsible for the subsequent installation and verification of the Machine.

5. **CRU and On-site Service**

   This type of Warranty Service is a combination of Type 1 and Type 2 (see above).

6. **CRU and Courier or Depot Service**

This type of Warranty Service is a combination of Type 1 and Type 3 (see above).

7. **CRU and Customer Carry-In or Mail-In Service**

   This type of Warranty Service is a combination of Type 1 and Type 4 (see above).

**When a 5, 6 or 7 type of warranty service is listed, IBM will determine which type of warranty service is appropriate for the repair.**

\* This type of service is called ThinkPad EasyServ or EasyServ in some countries.

The IBM Machine Warranty worldwide web site at http://www.ibm.com/servers/support/machine_warranties/ provides a worldwide overview of IBM's Limited Warranty for Machines, a Glossary of IBM definitions, Frequently Asked Questions (FAQs) and Support by Product (Machine) with links to Product Support pages. **The IBM Statement of Limited Warranty is also available on this site in 29 languages.**

To obtain warranty service contact IBM or your IBM reseller. In Canada or the United States, call 1-800-IBM-SERV (426-7378). In other countries, see the telephone numbers below.

**Worldwide telephone list**
Phone numbers are subject to change without notice. For the warranty service contact telephone number in a country not yet reflected in the list below, contact IBM in that country or visit http://www.ibm.com/pc/support/ and click **Support Phone List** for a current telephone listing.

| Country or Region | Telephone Number |
|---|---|
| Africa | Africa: +44 (0) 1475 555 055<br><br>South Africa:<br>+27 11 3028888<br>0800110756<br><br>Central Africa: Contact the nearest IBM Business Partner |
| Argentina | 0800-666-0011 |
| Australia | 131-426 |
| Austria | +43-1-24592-5901 |
| Belgium | Dutch: 02-210-9820<br><br>French: 02-210-9800 |
| Bolivia | 0800-0189 |

| Country or Region | Telephone Number |
| --- | --- |
| Brazil | 55-11-3889-8986 |
| Canada | English: 1-800-565-3344 |
| | French: 1-800-565-3344 |
| | In Toronto: 416-383-3344 |
| Chile | 800-224-488 |
| China | 800-810-1818 |
| China (Hong Kong and S.A.R.) | Home PC: 852-2825-7799 |
| | Commercial PC: 852-8205-0333 |
| | ThinkPad and WorkPad: 852-2825-6580 |
| Colombia | 1-800-912-3021 |
| Costa Rica | 284-3911 |
| Cyprus | +357-22-841100 |
| Czech Republic | +420-2-7213-1316 |
| Denmark | 4520-8200 |
| Dominican Republic | 566-4755 |
| | or 566-5161 ext. 8201 |
| | Toll Free within the Dominican Republic: 1-200-1929 |
| Ecuador | 1-800-426911 |
| El Salvador | 250-5696 |
| Estonia | +386-61-1796-699 |
| Finland | +358-9-459-6960 |
| France | +33-238-557-450 |
| Germany | +49-7032-15-49201 |
| Greece | +30-210-680-1700 |
| Guatemala | 335-8490 |
| Honduras | Tegucigalpa & San Pedro Sula: 232-4222 |
| | San Pedro Sula: 552-2234 |
| Hungary | +36-1-382-5720 |
| India | 1600-44-6666 |
| Indonesia | 800-140-3555 |
| Ireland | +353-(0)1-815-9200 |

| Country or Region | Telephone Number |
|---|---|
| Italy | +39-02-7031-6101 |
| Japan | *Desktop: 0120-887-870<br>• *Overseas calls: 81-46-266-4724<br><br>*ThinkPad: 0120-887-874<br>• *Overseas calls: 81-46-266-4724<br><br>IntelliStation and xSeries: 81-46-266-1358<br><br>PC Software: 0120-558-695<br>• Overseas calls: 81-44-200-8666 |
| Korea | 82-2-3284-1500 |
| Latvia | +386-61-1796-699 |
| Lithuania | +386-61-1796-699 |
| Luxembourg | +352-298-977-5063 |
| Malaysia | 1800-88-8558 |
| Malta | +356-23-4175 |
| Mexico | 001-866-434-2080 |
| Middle East | +44 (0) 1475-555-055 |
| Netherlands | +31-20-514-5770 |
| New Zealand | 0800-446-149 |
| Nicaragua | 255-6658 |
| Norway | NetVista, ThinkCenter, and ThinkPad: +47 6699 8960<br><br>All products: +47 815 21550 |
| Panama | 206-6047 |
| Peru | 0-800-50-866 |
| Philippines | 1800-1888-1426 |
| Poland | +48-22-878-6999 |
| Portugal | +351-21-892-7147 |
| Russian Federation | +7-095-940-2000 |
| Singapore | 1800-3172-888 |
| Slovakia | +421-2-4954-1217 |
| Slovenia | +386-1-5830-050 |
| Spain | +34-91-714-7983 |

| Country or Region | Telephone Number |
|---|---|
| Sri Lanka | 94-11-2448-442 |
| | 94-11-2421-066 |
| | 94-11-2493-500 |
| Sweden | +46-8-477-4420 |
| Switzerland | +41-58-333-0971 |
| Taiwan | 886-2-8723-9799 |
| Thailand | 1800-299-229 |
| Turkey | 00800-211-4032 |
| | +90-212-317-1760 |
| United Kingdom | +44-1475-555-055 |
| United States | 1-800-IBM-SERV |
| | (1-800-426-7378) |
| Uruguay | 000-411-005-6649 |
| Venezuela | 0-800-100-2011 |
| Vietnam | Ho Chi Minh: (848) 824-1474 |
| | Hanoi: (844) 842-6316 |

**Note:** * The numbers will be answered with a Japanese language voice prompt. For telephone support in English, please wait for the Japanese voice prompt to end, and an operator will answer. Please ask for "English support please," and your call will be transferred to an English speaking operator.

## Guarantee supplement for Mexico

This supplement is considered part of IBM's Statement of Limited Warranty and shall be effective solely and exclusively for products distributed and commercialized within Territory of the Mexican United States. In the event of a conflict, the terms of this supplement shall apply.

All software programs pre-loaded in the equipment shall only have a thirty-(30) day guarantee for installation defects from the date of purchase. IBM is not responsible for the information in such software programs and/or any additional software programs installed by you or installed after purchase of the product.

Services not chargeable to the guarantee shall be charged to the final user, prior an authorization.

In the event that warranty repair is required please call the Support Center at 001-866-434-2080, where you will be directed to the nearest Authorized Service Center. Should no Authorized Service Center exist in your city, location or within 50 miles of your city or location, the guarantee includes any reasonable delivery charges related to the transportation of the product to our nearest Authorized Service Center. Please call the nearest Authorized Service Center to obtain the necessary approvals or information concerning the shipment of the product and the shipment address.

To obtain a list of Authorized Service Centers, please visit: www.pc.ibm.com/la/centros_de_servicio/servicio_mexico/ servicio_mexico.html

**IBM de México, Manufactura y Tecnología, S. A. de C. V**.
**Camino a El Castillo 2200**
**El Salto, Jalisco**
**C.P. 45680,**
**Tel. 01-800-3676900**

# Appendix C. Customer replacement units (CRUs)

## Customer replaceable units (CRUs)

For your ThinkPad computer, the following parts are designated Customer Replaceable Unit (CRU) parts.

Listed below are the CRUs and the documentation where removal/replacement instructions are located.

| | Service and Troubleshooting Guide | Setup Poster | Access IBM | Online Hardware Maintenance Manual | Online Video |
|---|---|---|---|---|---|
| **Tier 1 CRUs** | | | | | |
| Battery | X | | X | X | X |
| AC adapter and power cord | | X | | | |
| Trackpoint cap | | X | | | |
| Hard disk drive | X | | X | X | X |
| Phone line cord | | X | | | |
| Memory | | X | X | X | X |
| **Tier 2 CRUs** | | | | | |
| Communication Daughter Card | | | X | X | X |
| Mini-PCI Card | | | X | X | X |
| Keyboard | | | X | X | X |

You can find instructions for replacing CRUs in Access IBM, your on-board help. To start Access IBM, press the blue Access IBM button on your ThinkPad.

If you are unable to access these instructions or if you have difficulty replacing a CRU, you can use either of the following additional resources:

- The Online Hardware Maintenance Manual and Online Videos available on the IBM Support Web site
  http://www.ibm.com/pc/support/site.wss/document.do?lndocid=part-video

- The IBM Support Center. For the telephone number of the Support Center for your country or region, see "Telephone numbers" on page 39.

# Appendix D. Notices

This publication was developed for products and services offered in the U.S.A.

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This IBM hardware product and IBM software products that might be packaged with it have been designed, when used in accordance with their associated documentation, to process date data correctly within and between the 20th and 21st centuries, provided all other products (for example, software, hardware, and firmware) used with these products properly exchange accurate date data with them.

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Any references in this publication to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product, and use of those Web sites is at your own risk.

## Electronic emission notices

*Federal Communications Commission (FCC) Statement*
IBM ThinkPad X40, machine type 1864, 1865, 2525, 2526, 2527, and 2528

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
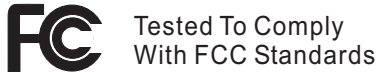
**FCC** Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

*Industry Canada Class B Emission Compliance Statement*
This Class B digital apparatus complies with Canadian ICES-003.

*Avis de conformité a` la réglementation d'Industrie Canada*
Cet appareil numérique de la classe B est conform a` la norme NMB-003 du
Canada.

*European Community Directive Conformance Statement*
This product is in conformity with the protection requirements of EU Council
Directive 89/336/EEC on the approximation of the laws of the Member States
relating to electro-magnetic compatibility. IBM cannot accept responsibility for
any failure to satisfy the protection requirements resulting from a
non-recommended modification of the product, including the fitting of
non-IBM option cards.

This product satisfies the Class B limits of EN 55022.

## Product notice requirements

The following notice applies to machines equipped with both a DVD and a
TV-out function:

> This product incorporates copyright protection technology that is protected by
> method claims of certain U.S. patents and other intellectual property rights owned
> by Macrovision Corporation and other rights owners. Use of this copyright
> protection technology must be authorized by Macrovision Corporation and is
> intended for home and other limited viewing use only, unless otherwise authorized
> by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

## Environmental notices for Japan

### Collecting and recycling a disused computer

If you are a company employee and need to dispose of a computer that is the
property of the company, you must do so in accordance with the Law for
Promotion of Effective Utilization of Resources. The computer is categorized

as industrial waste. It should be properly disposed of by an industrial waste disposal contractor certified by a local government. In accordance with the Law for Promotion of Effective Utilization of Resources, IBM Japan provides, through its PC Collecting and Recycling Services, for the collecting, reuse, and recycling of disused computers. For details, visit the IBM Web site at www.ibm.com/jp/pc/service/recycle

Pursuant to the Law for Promotion of Effective Utilization of Resources, the collecting and recycling of home-used computers by the manufacturer was begun on October 1, 2003. For details, visit the IBM Web site at: http://www.ibm.com/jp/pc/service/recycle/personal.html

### Disposing of a ThinkPad computer component containing heavy metal

The printed circuit board of a ThinkPad computer contains heavy metal. (Soldering with lead is used on the printed circuit board.) To properly dispose of the disused printed circuit board, follow the instructions in Collecting and recycling a disused ThinkPad computer.

### Disposing of a disused lithium battery

A button-shaped lithium battery is installed on the system board of your ThinkPad computer to back up the main battery.
If you want to replace it with a new one, contact your place of purchase or ask for a repair service provided by IBM. If you have replaced it by yourself and want to dispose of the disused lithium battery, insulate it with vinyl tape, contact your place of purchase, and follow the instructions.

If you use a ThinkPad computer at home and need to dispose of a lithium battery, you must comply with local ordinances and regulations.

### Handling a disused ThinkPad rechargeable battery pack

Your ThinkPad computer has a lithium ion battery pack or a nickel metal hydride battery pack. If you need to dispose of a battery pack, contact the proper person in IBM sales, service, or marketing, and follow that person's instructions. You can also see the instructions at www.ibm.com/jp/pc/recycle/battery

## IBM Lotus Software Offer

**About the offer:** As a qualifying IBM personal computer customer, you are receiving a single, limited license for the Lotus Notes "standalone" client and a single license for the Lotus SmartSuite software. These licenses entitle you to install and use this software on your new IBM personal computer using one of the following options:

- **Media for this software is not included in this offer. If you do not already have the appropriate Lotus Notes Client or Lotus SmartSuite software media**, you can order a CD and install the software onto your computer.\*\* Use one of the methods listed on the following page to order.
- **If you already have a licensed copy of the software**, you are entitled to make and use one additional copy of the software you have.

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- Lotus Organizer – Time, Contact, and Information Manager
- Lotus FastSite – Web Publisher
- Lotus SmartCenter – Internet Information Manager

**Customer Support:** For support information and phone numbers to help with initial installation of software, visit http://www.pc.ibm.com/support. To purchase technical support beyond this initial installation support, visit http://www.lotus.com/passport.

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**Proof of Entitlement:** The proof of purchase for your qualifying IBM personal computer, as well as this Offer document, should be retained as your proof of entitlement.

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Passport Advantage Program. For information about purchasing additional
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http://www.ibm.com or http://www.lotus.com/passport.

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**\*\*Important:** Pursuant to this Offer, you may order one CD media per license.
You will need to provide the 7 digit serial number of the new IBM personal
computer that you purchased. The CD is provided at no charge; however,
applicable shipping, duties and taxes may be imposed by local jurisdictions.
Please allow 10 to 20 business days from receipt of your request for delivery.

   **–In U. S. Or Canada:**
     Call 800-690-3899

   **–In Latin American Countries:**
     Via the Internet: http://smartsuite.modusmedia.com
     Mail address:
       IBM - Lotus Notes and SmartSuite Program
       Modus Media International
       501 Innovation Avenue
       Morrisville, NC, USA 27560
     Fax: 919-405-4495
     To inquire about an order, contact:
       Smartsuite_ibm@modusmedia.com

   **–In European Countries:**
     Via the Internet: http://ibm.modusmedia.co.uk
     Mail address:
       IBM - Lotus Notes and SmartSuite Program
       P.O. Box 3118
       Cumbernauld, Scotland, G68 9JX
     To inquire about an order, contact:
       ibm_smartsuite@modusmedia.com

   **–In Asia Pacific Countries:**
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     Mail address:
       IBM - Lotus Notes and SmartSuite Program
       Modus Media International
       eFulfillment Solution Center
       750 Chai Chee Road
       #03-10/14, Technopark at Chai Chee,
       Singapore 469000
     Fax: +65 6448 5830
     To inquire about an order, contact:
       Smartsuiteapac@modusmedia.com

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