

Thank you for purchasing this Factory Service Manual CD/DVD from servicemanuals4u.com.

Please check out our eBay auctions for more great deals on Factory Service Manuals:

[servicemanuals4u](http://servicemanuals4u.com)



ThinkPad[®] TransNote[™] Service and Troubleshooting Guide

Note

Before using this information and the product it supports, be sure to read the general information under “Important safety instructions” on page v and “Appendix. A. Product warranty and notices” on page 49.

First Edition (October 2000)

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 2000. All rights reserved.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Important safety instructions	v
Modem safety information	viii

Chapter 1. System overview	1
Features	2
Specifications	4
Using your on-board help	5

Chapter 2. Handling the ThinkPad computer 7	
TransNote handling tips	8
ThinkPad don'ts	9
ThinkPad do's	10
Cleaning your computer	11
Carrying your computer	11
Extending the life of your computer battery	11

Chapter 3. Protecting your computer . . . 13	
Using passwords	14
Resuming from hibernation	14
Power-on password	14
Hard disk passwords	15
Supervisor password	18
Windows passwords	19
Passwords and the on-screen keyboard . .	19
Attaching the mechanical lock	21

Chapter 4. Solving computer problems . . 23	
Troubleshooting	24
Error messages	24
Errors without messages	26
Power switch problem	27
TrackPoint problems	27
Keyboard problems	28
Standby, hibernation, and shutdown	
problems	29
Computer screen problems	31

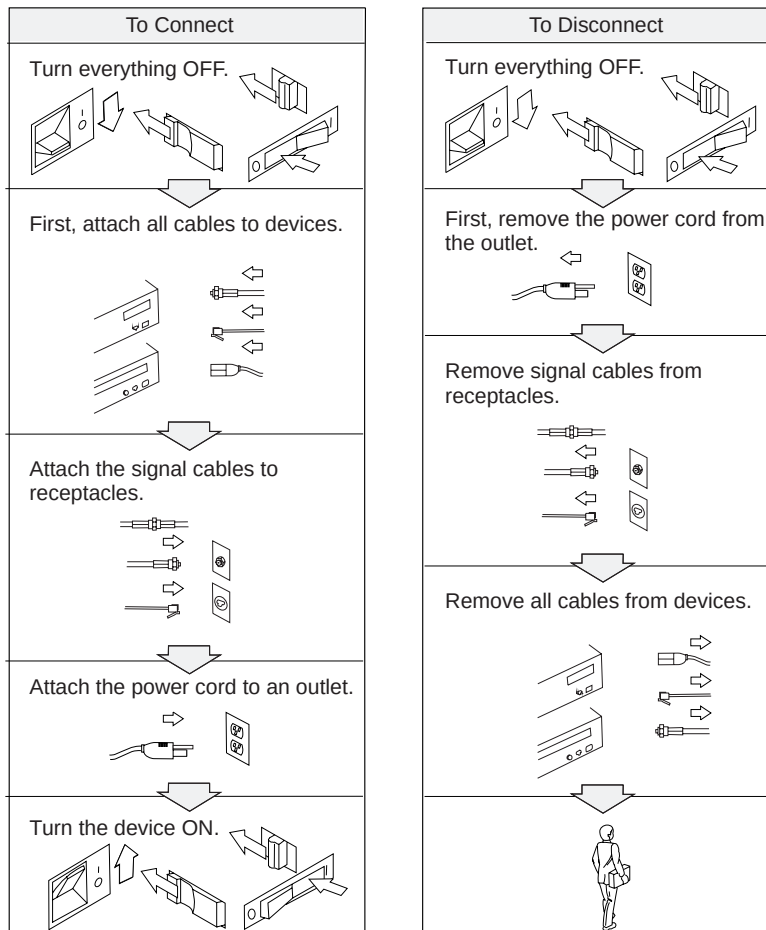
Battery problems	32
Hard disk drive problems	33
Software problems	33
Other problems	33
Testing your computer	34
Starting BIOS Setup Utility	35
Backing up your system	36
Backing up your registry	36
Backing up data	37
Recover pre-installed software	37
Using Software Selections CD	40
Upgrading the hard disk drive	42
Getting service	45
Getting help on the Web	45
Getting help by fax	45
Calling IBM	46

Appendix. A. Product warranty and notices 49	
Warranty Statements	49
IBM Statement of Limited Warranty for	
United States, Puerto Rico and Canada	
(Part 1 - General Terms)	49
IBM Statement of Warranty Worldwide	
except Canada, Puerto Rico, Turkey and	
United States (Part 1- General Terms) . .	52
Part 2 - Worldwide Country-Unique Terms	56
Notices	61
Processing date data	61
References to Web site addresses	62
Electronic emission notices	62
Telecommunication notices	65
Industry Canada requirements	67
Notice for European Union countries . .	69
Notice for Australia	69
Notice for Users in New Zealand	69
Trademarks	72

Important safety instructions



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. The 3-pin power cord must be used with a properly grounded outlet.





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

If the rechargeable battery pack is incorrectly installed, 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, or an equivalent.**
- **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

There is a danger of an explosion if the backup battery is incorrectly installed.

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 instructions below when installing or reconfiguring the Mini PCI option.

To avoid shock hazard, disconnect all the cables and the ac adapter when you install the 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 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.

Remove the main battery pack of the computer also. The certain circuit of the system still exists even if the power seems to be off. Do not forget to remove the ac adapter and the battery pack.

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 it 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.

CAUTION:

To reduce the risk of fire, use only No. 26 AWG or larger (thicker) telephone cable.

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 a lightning 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.

Save these instructions.

Chapter 1. System overview

Features	2	Using your on-board help	5
Specifications	4		

Features

Processor

- Intel® Mobile Pentium™ III processor

Memory

- Built-in: 64 MB
- Maximum: 320 MB

Storage device

- 2.5-inch hard disk drive: 10GB

Display

The color display uses TFT technology

- Size: 10.4 inch
- Resolution:
 - LCD: 800 by 600
 - External monitor: Up to 1600 by 1200
- Brightness control
- Touch screen feature

IBM ThinkScribe digital notepad

- Size: Letter or A4
- Input: IBM Digital Pen (Ink cartridges included)

Keyboard

- 84-key, 85-key, or 89-key
- TrackPoint
- **Fn** key function

External interface

- Universal Serial Bus (USB) connectors
- External-monitor connector
- ThinkPad TransNote Port Replicator connector
- Headphone jack
- Line-in jack
- Microphone jack
- Infrared port
- RJ11 telephone connector (available if the modem Mini-PCI Card or the Combo Mini-PCI Card is installed)
- RJ45 Ethernet connector (available if the Ethernet Mini-PCI Card or the Combo Mini-PCI Card is installed)
- PC Card slot (Type I or Type II)
- CompactFlash Card slot (Type I or Type II)

Specifications

Size (excluding cover)

- Width: 255.6 mm (10.1 in.)
- Depth: 313 mm (12.3 in.)
- Height: 28 mm (1.1 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)
 - Not operating: 5° to 43°C (41° to 109°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: 8% to 95%

Heat output

- 72 W (246 Btu/hr) maximum

Electrical (ac adapter)

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

Lithium-ion battery pack

- Nominal voltage: 14.4 V dc
- Capacity: 1650 mAH

Using your on-board help

Your computer contains comprehensive on-board help and information. You no longer need to carry heavy manuals or other reference books.

On-board help is provided by Access ThinkPad and ThinkPad Assistant. Press the computer's unique ThinkPad button to open Access ThinkPad. There, you can do a Quick Search or click on topics that take you to ThinkPad Assistant. You can also go directly to ThinkPad Assistant by clicking **Start → Programs → ThinkPad → ThinkPad Information**.

If you are logged on to the Internet, click one of the Internet portal buttons in Access ThinkPad to:

- Get help and user support rapidly.
- Download software updates.
- Find business solutions.
- Learn about accessories for your computer.

ThinkPad Assistant contains information within the following categories:

- About your computer
- Everyday use
- IBM Ink Manager[®] Pro
- Communicate
- Home and travel
- Enhancements
- Maintenance and updates
- Security
- Problem solving
- How to reach IBM

Using your on-board help

Chapter 2. Handling the ThinkPad computer

TransNote handling tips	8	Cleaning your computer	11
ThinkPad don'ts	9	Carrying your computer	11
ThinkPad do's	10	Extending the life of your computer battery	11

This chapter provides tips for handling your notebook computers. Some of them may not apply to your situation. Check your shipping checklist to confirm the items provided with your computer.

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

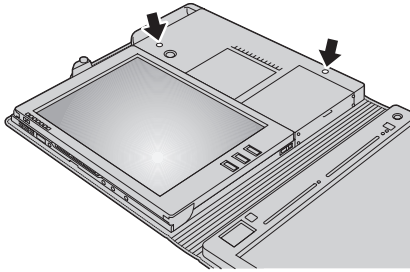
TransNote handling tips

Your TransNote computer has unique features.

Be sure to do the following:

- To open your TransNote computer, place the spine of your computer flat and the cutout section towards you. Press the center latch and open the computer. Continue to gently open the computer until the upper side latch releases.
- Close the computer in the same way as you open it, or leave the keyboard side flat and close the notepad side onto the keyboard side. Make sure the center and upper latches click when you close the computer. Do not close the computer by lifting the keyboard side onto the notepad, as this might damage the hard disk drive.
- When picking up your open computer, hold both right and left sides. Picking up or holding your computer by one side or by the display may damage your computer.
- When you use the touch screen feature of your TransNote computer, use either your finger or the pen stylus (colored red) provided. Do not touch the screen with the ink tip of the pen, or any tool other than the pen stylus. This might damage the computer display.
- If you put your computer on a soiled or sticky object, such as an oily table, or if you touch it with a soiled hand, the cover of your computer might be scratched or peeled, or the color of the cover might be changed.
- To wipe the cover of your computer, use a soft cloth dampened with water. Do not use any cleaner. If you have the leather cover model, use a soft dry cloth to wipe the cover.

- Avoiding placing objects, such as a CD or diskette, on the optical sensors shown below. These objects can affect the sensors that indicate when the TransNote system is closing, which could cause your screen to go blank.



ThinkPad don'ts

- Do not subject your computer to physical punishment, such as dropping or bumping.
- Do not put heavy objects on your computer.
- Do not spill or allow liquids into your computer.
- Do not use your computer in or near water (to avoid the danger of electrical shock).
- Do not pack your computer in a tightly packed suitcase or bag. Your computer display might be damaged.
- Do not disassemble your computer. Only an authorized IBM ThinkPad repair technician should disassemble and repair your computer.
- Do not scratch, twist, hit, or push the surface of your computer display. Touch or tap gently when using the touch screen feature.
- Do not place any objects between the display and the keyboard or under the keyboard.
- Do not close or move the computer until it is fully suspended or turned off.
- Do not modify or tape the latches to keep the system open or closed.
- Do not turn your computer over while the ac adapter is plugged in. This could break the adapter plug.
- Do not move the computer when the hard disk drive is accessing data (when the indicator is blinking).
- Do not use or store your computer where the temperature is below 5°C or above 35°C (41°F and 95°F).
- Do not place your computer within less than 13 cm (5 in.) of any electrical appliance that generates a strong magnetic field, such as a motor, a magnet, a TV, a refrigerator, or large audio speakers.

- Do not place a turned-on cellular telephone on or near the computer. The phone might cause a malfunction in the computer system.
- Do not hard-mount your computer in a vehicle or in any other place where it is subject to strong vibration.
- Do not crush, drop, or physically punish the removable hard disk when it is outside your computer.
- Do not connect the modem to a PBX (private branch exchange) or any other digital telephone extension line. **Your computer can use only a public-switched telephone network (PSTN).** The use of a phone line other than PSTN can damage your modem. If you are not sure which kind of phone line you are using, contact your telephone company. Many hotels or office buildings use digital telephone extension lines, so check before connecting the telephone cable in such places.
- Do not leave the base of your computer in contact with your lap or any part of your body for an extended period when the computer is functioning or when the battery is charging. Your computer dissipates some heat during normal operation. This heat is a function of the level of system activity and battery charge level. Extended contact with your body, even through clothing, could cause discomfort or, eventually, a skin burn.

ThinkPad do's

Treat your computer like precision electronic machinery.

- When installing your hard disk, follow the instructions in the on-board help or manuals shipped with your computer, and apply pressure only where needed on the device.
- If your computer has a device bay and you are replacing the device in it, make sure that the device is warm- or hot-swappable, or else turn off the computer. For details, refer to the on-board help.
- If you exchange drives in your computer, reinstall the plastic bezel faces (if supplied).
- Store your external and removable hard disk, diskette, CD-ROM, and DVD-ROM drives in the appropriate containers or packaging when they are not being used.
- Choose a quality carrying case that will protect your computer.
- Store packing materials safely out of the reach of children to prevent the risk of suffocation from plastic bags.
- Register your ThinkPad products with IBM (refer to the Web page: **www.pc.ibm.com/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 upgrades.
- Check the IBM Web pages (**www.ibm.com/thinkpad**) periodically to get current information about your computer.

Cleaning your computer

Occasionally clean your computer as follows:

- Do not spray cleaner directly on the display or the keyboard.
- Gently wipe the computer display with a dry, soft cloth.

Carrying your computer

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

1. Turn off all attached devices.
2. Do not close the computer until the standby indicator is on (if the computer is in standby mode), or the power indicator is off (if it is turned off or in hibernation mode).
3. Close the computer in the same way as you open it, or leave the keyboard side flat and close the notepad side onto the keyboard side. Be sure not to close by lifting the keyboard side onto the notepad, as this might damage the hard disk drive.
4. Unplug all external cables and cords from your computer.
5. Make sure all computer doors and covers are closed.
6. Use a quality carrying case that provides adequate cushion and protection.

Attention: Do not move the computer when the hard disk drive is accessing data—that is, when the indicator is blinking. Make sure the indicator is off before you carry the computer.

Extending the life of your computer battery

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

- For longest battery life, you should occasionally wait until the battery pack is completely discharged before you recharge it.
- Once you start charging, do not disconnect the ac adapter or remove the battery pack until the battery is fully charged.
- Whenever possible, use the ThinkPad battery power-saving modes:
 - **Screen blank**
 - **Standby**
 - **Hibernation**

For more information, refer to the on-board help.

- Decrease the brightness of the computer display.

- Use power management. Each operating system comes with its own power management system.
- If the internal serial devices—the modem, the serial port, and the infrared port—are not in use, disable them, using the ThinkPad Configuration Program.
- If you will not be using the computer for a long period, remove the battery pack and keep it in a cool place.

Chapter 3. Protecting your computer

Using passwords	14	Supervisor password	18
Resuming from hibernation	14	Windows passwords	19
Power-on password	14	Passwords and the on-screen keyboard	19
Hard disk passwords	15	Attaching the mechanical lock	21

Using passwords

To make sure that only authorized persons can use your computer, you can set different kinds of passwords. Then prospective users will have to know the proper passwords in order to access your computer or data.

Resuming from hibernation

If you have set passwords and you put your computer into hibernation mode—for example, by pressing Fn+F9—you can resume operation as follows:

Press the power switch, then you will be prompted to type your password. You must enter a power-on password or a supervisor password (if one is set).

If any hard disk has a hard disk password, it is unlocked automatically when you resume operation.

Power-on password

You can set a power-on password to help protect your ThinkPad computer against access by unauthorized users.

If you set a power-on password, the password prompt appears on the screen whenever you turn on the computer. You must enter the correct password to start using the computer.

To set a power-on password:

1. Save all open files and exit all applications.
2. Click **Start** → **Shut Down** → **Shutdown**. When the computer turns off, turn it on again. (If you choose **Restart**, you cannot enter the BIOS Setup Utility program.)
3. As soon as the IBM ThinkPad opening screen appears, press F1. After several seconds, the BIOS Setup Utility screen opens.
4. Using the cursor directional keys to move down the menu, select **Password**.
5. Select **power-on password**.
6. Choose your power-on password, which can be from one to seven characters in any combination. Type it within the brackets on the **Enter New Password** field.
7. Press the Enter key once to move to the next line. Retype the password you just entered, to verify it.
8. Commit your password to memory.

Note: You might want to note your power-on password in a safe place. Otherwise, if you forget it, you have to take your computer to an IBM reseller or a marketing representative to have the password canceled.

9. Press F10 to save the password and exit.
10. Select **Yes** in the Setup Confirmation window.

Changing or removing the power-on password

To change or remove the power-on password, follow steps 1 through 6. Enter your current password. To change the password, type a new password in the **Enter New Password** field and then retype it to verify it. To remove the password, follow steps 1 through 6. Type your current password. When the **Enter New Password** field opens, leave it blank and press Enter twice.

Hard disk passwords

Two types of hard disk password help protect the information stored on the hard disk.

- User hard disk password
- Master hard disk password, which requires a user password

When a user hard disk password is set, but no master hard disk password is set, no one can get access to files and applications on the hard disk without first typing that password.

The master password can be set and used only by a system administrator. Like a master key, it enables the administrator to get access to any hard drive in a system. The administrator sets the master password, and no one else knows it. Then the administrator sets a user password for each computer in the network, and tells each user the password for his or her computer. The user can then change the user password as desired; the administrator can still get access by using the master password.

If the user hard disk password is different from the power-on password, a preset timer or an incoming call will not cause the computer to resume operation. To use the unattended resume function with a hard disk password, set the same password for both the power-on password and the user hard disk password.

To set a hard disk password:

1. Save all open files and exit all applications.
2. Click **Start** → **Shut Down** → **Shutdown**. When the computer turns off, turn it on again. (If you choose **Restart**, you cannot enter the BIOS Setup Utility program.)

3. As soon as the IBM ThinkPad opening screen appears, press F1. After several seconds, the BIOS Setup Utility screen opens.
4. Select **Password**, using the cursor directional keys to move down the menu.
5. Select **Hard Disk x Password**, where x is the letter of the hard disk drive for which you want to set a password.
6. A password window opens. You are prompted to select **User only** or **Master + User**. Select **User** if you want to set only one hard disk password. If you are an administrator or a supervisor, you can select **Master + User** to set two passwords. (The user can change the user password later.)
7. If you select **Master + User**, go to step 10.
8. If you select **User only**, a new-password window opens. Choose a user hard disk password, which can be from one to seven characters in any combination. Type it in the **Enter New Password** field.
9. Press the down arrow key once to move to the next line. Retype the password you just entered, to verify it. Go to step 16 to complete the procedure.
10. If you select **Master + User**, a message window opens and prompts you to set up a user hard disk password first. Select **Continue**.
11. The user password window opens. Choose the user password you want, which can be from one to seven characters in any combination. Type it in the **Enter New Password** field.
12. Press the Enter key once to move to the next line. Retype the password you just entered, to verify it.
13. A message window opens and prompts you to set the master hard disk password. Select **Continue**.
14. A new master hard disk window opens. Choose the master hard disk password you want, which can be from one to seven characters in any combination. Type it in the **Enter New Password** field.
15. Press the Enter key once to move to the next line. Retype the password you just entered, to verify it.
16. Commit any password to memory.

Attention

If you forget your hard disk password, you cannot reset your password or recover data from the hard disk. You must take your computer to an IBM reseller or an IBM marketing representative to have the hard disk drive replaced. Proof of purchase is required, and an additional charge might be required for the service. Neither an IBM reseller nor IBM marketing representative can make the old hard disk drive usable.

17. Press F10 to save and exit.
18. Select **Yes** in the Setup Confirmation window.

The next time you turn on your computer, you will have to type the user or master hard disk password in order to start your computer and get access to your operating system.

Changing or removing the User only hard disk password

To change a user-only hard disk password, follow these steps:

1. Follow steps 1 through 6 to set a hard disk password, typing your password to get access to the BIOS Setup Utility program.
2. Select the **User only** option.
3. In the **Enter New Password** field, type the new password; then retype it to verify.

To remove the User hard disk password, follow steps 1 and 2 above. Then:

1. Leave the **Enter New Password** field blank.
2. Press Enter twice.

Changing or removing the User + Master hard-disk passwords

1. Follow steps 1 through 6 to set a hard disk password.
2. A password window opens. You are prompted to select **User HDP** or **Master HDP**.
3. If you choose **User HDP**, do one of the following:
 - To change the password, type the current user hard disk password. Then type the new password, and retype it to verify it.

- To delete the password, type the current master hard disk password, and then press Enter twice. Both user and master passwords will be removed.
4. If you choose **Master HDP**, do one of the following:
 - To change the password, type the current master hard disk password. Then type the new password, and retype it to verify it.
 - To delete the password, type the current master hard disk password, and then press Enter twice. Both user and master passwords will be removed.

Supervisor password

The supervisor password protects the system information stored in the BIOS Setup Utility so that without knowing the password, nobody can change the configuration of the computer.

To set a supervisor password:

1. Save all open files, and exit all applications.
2. Click **Start** → **Shut Down** → **Shutdown**. When the computer turns off, turn it on again. (If you choose **Restart**, you cannot enter the BIOS Setup Utility program.)
3. When the IBM ThinkPad opening screen appears, press F1. After several seconds the BIOS Setup Utility screen opens.
4. Select **Password** by using the cursor directional keys to move down the menu.
5. Select **Supervisor Password**.
6. A window opens that prompts you to enter a new password.
7. Choose your supervisor password; it can be from one to seven characters in any combination. Type it in the **Enter New Password** field; then press Enter.
8. Press the Enter key to move to the next line. Retype the password you just entered, to verify it.
9. Commit your password to memory.

Attention

You might want to note your password and keep it in a safe place. If you forget your supervisor password, you cannot reset your password. You have to take your computer to an IBM reseller or an IBM marketing representative to have the system board replaced. Proof of purchase is required and an additional charge might be required for the service.

10. Press F10 to save and exit.
11. Select **Yes** in the Setup Confirmation window.

The next time you open the BIOS Setup Utility program, you will be prompted to type your password to proceed.

Changing or removing the supervisor password

To change or remove the supervisor password, do steps 1 to 6 from the procedure above. Then, to change the password, do the following:

1. Type a new password, and press Enter.
2. Type the new password again, to verify it. Press Enter again.

To remove the password, do the following:

1. Leave the password field blank, and press Enter.
2. Press Enter again.

Windows passwords

Windows[®] operating systems make the following passwords available:

Note: You can use either the on-screen keyboard or the regular keyboard to enter a user ID and a password.

- **Screen saver password:** Once the screen saver has started, only those who know the password can close the screen saver and resume operating the computer.
- **Windows password:** When you start your ThinkPad computer and the Windows operating system opens, Windows requires you to enter a user ID and a password. This password is used when your computer returns from standby mode or hibernation mode.
- **Network password:** If you work on a local area network (LAN) with your ThinkPad computer, your LAN administrator might have set passwords to restrict access to various parts of the network. If you are authorized to access restricted areas of your LAN, you will need to establish a logon password in Windows.

For more information on these passwords, refer to the Windows help.

Passwords and the on-screen keyboard

For your convenience, you can enter passwords when the TransNote display is lying flat on the keyboard, using the TouchBoard[™] on-screen keyboard. So, when you resume from standby mode or hibernation mode, you can enter your password without having to raise the screen.

In Windows 2000, a password is required to be set. This password is entered when you start your computer, or resume from standby or hibernation. If you are using Windows 2000, you need only set the Windows password for security purposes. The TouchBoard on-screen keyboard can be used to enter this password.

Note: If you set a power-on password, you will be prompted to enter this password in addition to the Windows password when the computer starts or returns from hibernation mode.

If you are using Windows 98, you need only set the power-on password for security purposes. An on-screen keyboard will appear when you start your computer, or resume from hibernation. Use this keyboard to enter your password when prompted.

Note: If you set a Windows password and are using Windows 98, the TouchBoard on-screen keyboard will not appear when you are prompted to enter a password.

Attaching the mechanical lock

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

Attach a mechanical lock to the keyhole of the computer; then secure the chain on the lock to a stationary object. Refer to the instructions shipped with the mechanical lock.

Note: You are responsible for evaluating, selecting, and implementing the locking devices and security features. IBM makes no comments, judgments, or warranties about the function, quality, or performance of locking devices and security features.

Attaching the mechanical lock

Chapter 4. Solving computer problems

Troubleshooting	24	Testing your computer	34
Error messages	24	Starting BIOS Setup Utility	35
Errors without messages	26	Backing up your system	36
Power switch problem	27	Backing up your registry.	36
TrackPoint problems	27	Backing up data.	37
Keyboard problems	28	Recover pre-installed software	37
Standby, hibernation, and shutdown		Using Software Selections CD	40
problems	29	Upgrading the hard disk drive.	42
Computer screen problems	31	Getting service	45
Battery problems	32	Getting help on the Web	45
Hard disk drive problems	33	Getting help by fax	45
Software problems	33	Calling IBM	46
Other problems	33		

Troubleshooting

Error messages

Message	Solution
0175: Bad CRC1, stop POST task	The EEPROM checksum is not correct (block #6). Have the computer serviced.
0187: EAIA data access error	The access to EEPROM has failed. Have the computer serviced.
0188: Invalid RFID serialization information area or bad CRC2.	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.
0200: Hard disk error	The hard disk is not working. Make sure the hard disk drive is attached firmly. Run the BIOS Setup Utility; then make sure the hard disk drive is not disabled in the Startup menu.
021x: Keyboard error (x can be any character.)	Make sure that no object is placed on the keyboard or on the external keyboard, if you have one. 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 was, have the external keyboard serviced. • Make sure that the external keyboard is connected to the correct connector. Test the computer by using PC-Doctor for Windows. • If the computer stops during the test, have the computer serviced.
0220: Monitor type error	The monitor type does not match the type specified in CMOS. Run the IBM BIOS Setup Utility to make sure that your monitor type matches the type specified in the utility.
0230: Shadow RAM error	The shadow RAM failed. Test your computer's memory with the PC-Doctor for Windows. If you added a memory module just before turning the computer on, reinstall it. Then test the memory with PC-Doctor for Windows.
0231: System RAM error	The system RAM failed. Test your computer's memory with PC-Doctor for Windows. If you added a memory module just before turning the computer on, reinstall it. Then test the memory with PC-Doctor for Windows.

Message	Solution
0232: Extended RAM error	The extended RAM failed. Test your computer's memory with the PC-Doctor for Windows. If you increased memory just before turning the computer on, reinstall it. Then test the memory with the PC-Doctor for Windows.
0250: System battery error	The system battery is dead. Replace the battery and run the 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 the BIOS Setup Utility to reconfigure the settings. If you still see the same error code, have the computer serviced.
0252: Password checksum bad	The password you have set is cleared. Run the BIOS Setup Utility to set the password.
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.
0280: Previous boot incomplete	Your computer was previously unable to complete the boot process. 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.
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 (refer to "Using passwords" on page 14). 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 (refer to "Using passwords" on page 14). If you still see the same error message, have the computer serviced.

Message	Solution
The DOS full-screen looks smaller.	If you use a DOS application that supports only 640x480 resolution (VGA mode), the screen image might look slightly distorted or might appear smaller than the display size. This is to maintain compatibility with other DOS applications. 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 screen expansion function, you can use the Fn+F8 keys to expand the screen image.
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. • Restore the system configuration to what it was before your computer entered hibernation mode. • If the memory size has been changed, re-create the hibernation file.
Operating system not found.	Verify the following: • The hard disk drive is correctly installed. • A startable diskette is in the diskette drive If you still see the same error message, check the boot sequence, using the BIOS Setup Utility.
Fan error	The cooling fan is failing. Have the computer serviced.
EMM386 Not Installed—Unable to Set Page Frame Base Address.	Edit C:\CONFIG.SYS and change a line from device=C:\WINDOWS\EMM386.EXE RAM to device=C:\WINDOWS\EMM386.EXE NOEMS and save this file.
CardBus Configuration Error—Device Disabled.	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.

Errors without messages

Problem: The screen is blank and you do not hear any beeps.

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 External monitor problems.

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** (refer to “Using passwords” on page 14).

If the power-on password prompt does not appear, the brightness control lever might be set to minimum brightness. Adjust the brightness level by pressing the Fn+F6 key.

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: The screen is blank and you hear two or more beeps, or a continuous beep.

Solution: If you are using Ethernet:

- Make sure that the Ethernet cable is connected firmly.
- Contact your network administrator.

If the screen is still blank, and beeps are not stopped, have the computer serviced.

Problem: Only the cursor appears.

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

Power switch problem

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

Solution: Press the power switch to turn off the computer, and then turn it on again. If the power does not go off, press the reset button, shown below.

TrackPoint problems

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

Solution: The cursor may drift when you are not using the TrackPoint® during normal operation. This is a normal characteristic of the TrackPoint and is not a defect. Cursor drifting may occur for several seconds under the following conditions:

- When the computer is turned on.
- When the computer resumes normal operation.

- When the TrackPoint is pressed for a long time.
- When the temperature changes.

Problem: The cursor does not work for a while after the settings of the TrackPoint have been changed.

Solution: This is a normal characteristic of the cursor. Wait several seconds until the cursor returns to the normal state.

Problem: The mouse or pointing device does not work.

Solution:

- Make sure that the pointing-device cable is enabled in the ThinkPad Configuration Program.
- Make sure that the mouse or pointing-device cable is securely connected to the computer.
- Try using the TrackPoint. If the TrackPoint works, the error might be due to the mouse.
- 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**. Refer to the “Using Software Selections CD” on page 40 for installing the driver.

Problem: The scrolling or magnifying glass function does not work.

Solution: See the **General** tab page in Mouse Properties, and make sure that the **IBM PS/2 TrackPoint** driver is installed.

Keyboard problems

Problem: The cursor does not move after the computer returns from one of the power management modes.

Solution: Make sure you followed the instructions correctly when you installed Windows with the Advanced Power Management (APM) option.

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

Solution: If the problem occurred immediately after the computer returned from standby mode, enter the power-on password if one has been set.

If an external 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 Fn+NumLk.

Problem: All or some 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 keyboard do not work.

Solution: To use an external keyboard, you need to attach the keyboard / mouse cable to the computer. Make sure that:

- The keyboard / mouse cable is correctly connected to the computer.
- The keyboard cable is connected to the correct side of the keyboard / mouse cable.

If these connections are correct, disconnect the keyboard / mouse cable from the computer and make sure that the keyboard operates properly. If the built-in keyboard works, there is a problem with either the cable or with the keyboard. Try using a different keyboard / mouse cable or external keyboard.

Standby, hibernation, and shutdown problems

Problem: The computer shuts down or enters standby mode automatically.

Solution: If the processor reaches a temperature that is too high, the computer will automatically shut down or enter standby mode. This allows the computer to cool, and protects the processor and other internal components.

Problem: The computer enters standby mode immediately after POST (the standby indicator 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: A message critical low-battery error appears, 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: The computer screen remains blank after you take action to return from standby mode.

Solution: Check if 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 screen remains blank and output is not displayed. This restriction does not depend on the resolution value.**

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

Solution: The computer automatically enters standby or hibernation mode when the battery is depleted. Do one of the following:

- Replace the battery with a fully charged one and then press the Fn key.
- Connect the ac adapter to the computer; then press the Fn key.

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

Solution: Check if any option has been selected to disable your computer from entering standby or hibernation mode.

Problem: The Fn+F9 key combination does not make the computer enter hibernation mode.

Solution: Enable hibernation mode as follows:

1. Start the ThinkPad Configuration Program.
2. Click **Power Management**.
3. Click the **Hibernation** tab. (For Windows 2000, click the **Hibernate** tab.)

4. Click the **Enable hibernation...** button. (For Windows 2000, check the **Enable hibernate support** check box.)
5. Click the **Create Now** button. (For Windows 2000, this is not required.)

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, using the **Control Panel**.

Computer screen problems

Problem: The screen is blank.

Solution: Press Fn+F6 key to make the screen brighter. 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 display resolution and color depth are correctly set.
- The monitor type is correct.

To check these settings, do as follows:

1. Click **Start** → **Settings** → **Control Panel**.
2. Double-click **Display**. The Display Properties window opens.
3. Click the **Settings** tab.
4. Check if the color depth and resolution are correctly set.
5. Click **Advanced....**
6. Click the **Adapter** tab.
7. Make sure “ATI RAGE MOBILITY-M PCI” is shown in the adapter information window.
8. Click the **Monitor** tab.
9. Make sure the information is correct.

Problem: Incorrect characters appear on the screen.

Solution: Did you install the operating system or application program correctly? If they are installed and configured correctly, have the computer serviced.

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

Solution: Press the reset switch 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 optional Quick Charger is available, use it to charge the over-discharged battery. If the battery cannot be fully charged in 24 hours, use a new 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 cannot be charged.

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.
- When you carry the hard disk drive.
- When you carry 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 the IBM BIOS Setup Utility, make sure that there is no exclamation point ! to the left of the hard disk drive. If there is such a mark, the hard disk drive is disabled. Clear the mark to enable the drive.

Software problems

Problem: An application does not run correctly.

Solution: Make sure that the problem is not being caused by the application:

- Your computer has the minimum required memory to run the application. Refer to the manuals supplied with the application.
- The application is designed to operate with your operating system.
- Other applications run correctly on your computer.
- The necessary device drivers are installed.
- The application works when it is run on some other computer.

If an error message appears when you are using the application program, refer to the manuals supplied with the application.

If the application still does not run correctly, contact your place of purchase or a service representative for help.

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 the power switch. If the power does not go off, press the reset button.

Problem: The computer does not turn off with the power switch.

Solution: If the standby indicator is on and you are working under battery power, replace the battery with a fully charged one, or change your power source to ac power.

If you still have a problem, press the reset switch of your computer; this forces the computer to turn off.

Problem: The computer does not start from the device you want it to boot from, 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.

Make sure that the device from which the computer starts is enabled by checking there is no exclamation point ! to the left of the device name.

Testing your computer

PC-Doctor for Windows offers a set of tests that you can run to diagnose hardware problems on your computer. You should start by running the Quick Test set a subset that can find the most common problems. The procedure is as follows:

1. Click **Start** → **Programs** → **PC-Doctor for Windows**.
2. Choose the Quick Test.

Note: Running the Quick Test Set can take up to 10 minutes. Make sure you have time to run this test; do not interrupt the test while it is running.

3. PC-Doctor runs the Quick Test set and reports its findings.
4. If no problems are found--that is, if it doesn't diagnose the problem you're having--consider running other test.

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

Starting BIOS Setup Utility

Your computer provides a program, called IBM BIOS Setup Utility, that you can use to set up various parameters and solve problems. The panels in this utility are as follows:

- **Config:** Set the configuration of your computer.
- **Date/Time:** Set the date and time.
- **Password:** Set a password.
- **Startup:** Set the startup device.
- **Restart:** Restart the system.

Note: You can set 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, use ConfigSafe (see “Backing up your registry” on page 36) to save your computer’s current configuration.
2. Remove any diskette from the diskette drive, and then turn off the computer.
3. Turn on the computer; then, while the “Press F1 for IBM BIOS Setup Utility” message is displayed at the lower-left of the screen, press F1.
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; then, however, you cannot change the parameters that are protected by the supervisor password. For more information, refer to the on-board help provided with your computer.
4. 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.
5. Change the items you want 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.
6. 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.
7. Select **Restart**; then press Enter. Change the option you want; then press Enter. Your computer restarts.

Notes:

1. The Restart submenu offers you such options as loading the default settings or discarding the changes.

2. If you need to restore the settings to their original state as of the time of purchase, press the F9 key to load the default settings.

Backing up your system

Backing up your registry

When you add software applications or devices to your computer, the installation process may change your registry and configuration.

If your computer does not work properly after you add applications or devices, you need to restore the previous registry.

Before you make changes, backup the configuration. If something goes wrong, you can restore the system registry and configuration files.

You can use ConfigSafe (for Windows 98 and Windows 2000) or System Restore (for Windows Millennium Edition) to save the configuration before you make changes. Then if something goes wrong, use ConfigSafe or System Restore to restore the system registry and configuration files.

For Windows 98 or Windows 2000:

To capture a snapshot of your system configuration with ConfigSafe:

1. Click **Start** → **Programs** → **ConfigSafe** → **ConfigSafe**
2. Double-click **ConfigSafe**. The window opens.
3. Click the **camera** icon.
4. Type a name for the snapshot. For example, before installing a word processor, you might type, "Before installing a word processor."
5. Click **OK**.
6. After a few moments, the main ConfigSafe window will return. The snapshot is complete.

If you need to restore a configuration snapshot, open ConfigSafe and follow the on-screen instructions.

For Windows Millennium Edition:

To capture a snapshot of your system configuration, or to restore your configuration to an earlier snapshot using Windows Me, click **Start** → **Programs** → **Accessories** → **System Tools** → **System Restore** and follow the on-screen instructions.

Backing up data

Hard disks are reliable data storage devices. However, you should protect yourself against accidental data loss or the unlikely event of a hard disk malfunction by backing up your important files regularly.

1. Click **Start** → **Programs** → **Accessories** → **System Tools** → **Backup**.
2. Make sure that the **Create a new backup job** button is marked.
3. Click **OK**. The Backup Wizard will guide you through backing up some or all of the files on your hard disk.

Recover pre-installed software

If your hard disk drive data is damaged or accidentally erased, you can restore the software that was shipped with your computer. This software includes your pre-installed operating system, applications, and device drivers.

You can restore your pre-installed software using either the Product Recovery program or a Recovery CD.

The Product Recovery program is in a section of your hard disk drive that is not displayed by Windows Explorer. You may use a Recovery CD if it was provided with your computer.

In case of a hard disk drive failure, or if the Product Recovery program is accidentally deleted or becomes damaged, you can order a Product Recovery CD from IBM.

Note: The recovery process might take up to 2 hours.

Attention

All of the files on the C:\drive will be lost in the recovery process. Be sure to back up copies of the files you have saved on your C:\drive before you begin.

To use the Product Recovery program to restore your pre-installed software, do the following:

1. Save all your files and shut down your desktop.
2. Turn off your computer.
3. Turn on your computer. Quickly press F11 when this message is displayed on the screen: “To start the Product Recovery program, press F11.” This message is displayed for only a few seconds.

Note: If this message does not appear, you can use a Recovery Repair diskette to get access to the Product Recovery program.

4. From the list displayed on the screen, select the operating system you want to recover.
5. Select the recovery options you want, and follow the instructions on the screen.
6. Restart the system by pressing Ctrl+Alt+Del or by turning the computer off and then on again. Your computer will restart with the pre-installed operating system, drivers, and software.

To use a Recovery CD to restore your pre-installed software, do the following:

Note: You need one of the following sets of drives to use the Recovery CD.

- IBM Portable Drive Bay 2000 and its CD-ROM drive or DVD-ROM drive
 - IBM USB Floppy Disk drive and IBM USB CD-ROM drive
 - IBM USB Floppy Disk drive and IBM PCMCIA CD-ROM drive (x20)
1. Save all your files and turn off your computer.
 2. Connect your set of drives.
 3. Insert the Recovery CD into the CD-ROM or DVD-ROM drive.
 4. If you do not use the IBM Portable Drive Bay 2000, insert the Recovery CD diskette into the USB Floppy Disk drive.
 5. If you use the IBM Portable Drive Bay 2000, you must change the boot sequence as follows:
 - a. Turn on your computer; then start the BIOS Setup Utility by pressing the F1 key while the Press F1 for IBM BIOS Setup Utility message is displayed at the lower left of the screen.
 - b. Select **Startup** with the cursor key, and press Enter.
 - c. Select **Boot** by pressing Enter.
 - d. Select **ATAPI CD-ROM Drive** with the cursor key.
 - e. Move **ATAPI CD-ROM Drive** up by pressing F6.The default setting is as follows:

Removable Device
+Hard Drive
ATAPI CD-ROM Drive
Network Boot

After you change the sequence, the setting becomes as follows:

Removable Device
ATAPI CD-ROM Drive
+Hard Drive
Network Boot

- f. Press F10 and Enter to save this setting and exit this utility.
6. Turn on your computer; then wait for the Product Recovery program menu to display on your screen.
7. From the list displayed on the screen, select the operating system you want to recover.
8. Select the recovery options you want and follow the instructions on the screen.
9. Restart the system by pressing Ctrl+Alt+Del or by turning the computer off and then on again. Your computer will restart with the pre-installed operating system, drivers, and software.

To create a Recovery Repair diskette

The Recovery Repair diskette is used to recover the prompt that is needed to access the Product Recovery program, if the prompt does not appear. Make a Recovery Repair diskette and save it for future use. To make a Recovery Repair diskette:

1. Shut down and restart your computer.
2. At the prompt, press F11. (The option to press F11 appears for only a few seconds. You must press F11 quickly.) The Product Recovery program main menu appears.
3. If you are using Windows 2000 Professional, you will be prompted to select the appropriate operating system setting. This menu does not appear for Windows 98 SE.
4. Select **System Utilities** from the main menu. Press Enter.
5. Select **Create a Recovery Repair** diskette. Press Enter.
6. Follow the on-screen instructions.
7. When the process is completed, label your diskette as the Recovery Repair diskette and save it for future use.

To use the Recovery Repair diskette:

1. Shut down and turn off your computer.
2. Insert the Recovery Repair diskette into the drive; then turn on the computer.
3. Follow the on-screen instructions.

Using Software Selections CD

The Software Selections CD contains all the software applications and device drivers for your computer. You can make selections from this CD to install all the software, and only the software, you need.

Note: To get device drivers for DOS, go to this Web site:

www.ibm.com/pc/support

Select the section for notebook computers, and then go to the downloadable files section to find the driver you need.

If you need to reinstall software or a hardware device driver, put the Software Selections CD in your CD-ROM or DVD-ROM drive. The Features menu appears automatically.

Note: If your Software Selections CD does not contain device drivers, they can be found on the Web at www.ibm.com/pc/support or in the following directory on your hard disk drive: C:\IBMTTOOLS\drivers. This directory also contains text files explaining how to install the drivers.

The Software Selections CD offers the following:

Install Software

Go to this page to do the following:

- Reinstall a software application
- Install value-added software that was not preinstalled on your computer

Uninstall Software

From this page you can uninstall any application program or device driver that was installed from the Software Selections CD and that has an uninstall entry in the **Add/Remove Program** list.

Advanced Functions

- **Change Settings**

From this page you can select options such as where to access the Software Selections CD, how to display information about software products, and whether to enable custom installation for some software products.

- **Install Device Drivers**

Go to this page to view a list of the device drivers on the system and install the ones you want. For some drivers, the page also contains readme that you should read before starting installation.

- **Create a Diskette Image**

Some applications or devices require a diskette for installation. With this function, you create a diskette image.

- **Create a Software Selections CD Image**

From this page you can copy the entire Software Selections CD and program onto your hard disk, and then install software and drivers without the CD.

Read the License Agreement

This page describes the license agreements for the software programs on the Software Selections CD.

Help

This page contains an introduction to the Software Selections CD and explains each item.

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.

Note: 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.

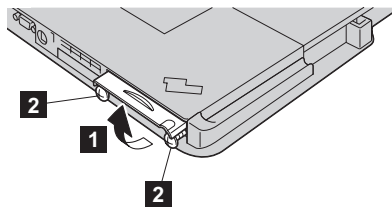
To upgrade the hard disk drive, do as follows:

Attention

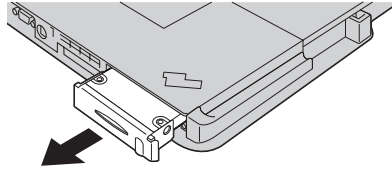
- Do not drop the drive or subject it to physical shocks. Put the drive on a material, such as soft cloth, that absorb the physical shock.
- Do not apply pressure to the cover of the drive.
- Do not touch the connector.

The drive is very sensitive. Incorrect handling can cause damage and permanent loss of data. 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.

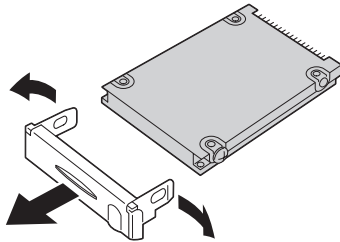
1. Turn off the computer; then disconnect the ac adapter and all cables from the computer.
2. Remove the battery.
3. Open the PC Card slot cover **(1)**; then loosen the screws on both sides of the PC Card slot **(2)**.



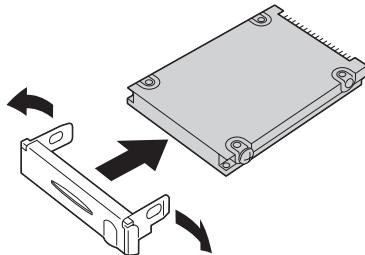
4. Remove the hard disk drive by pulling the PC Card slot cover away from the computer.



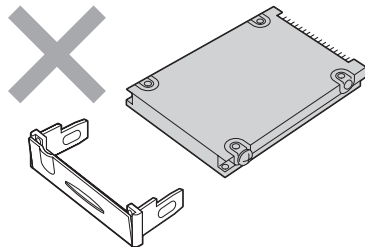
5. Detach the cover from the hard disk drive, stretching out both tabs of the cover.



6. Attach the cover to a new hard disk drive, stretching out both tabs of the cover.



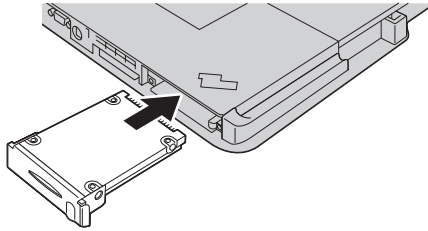
Be careful not to put the cover on the hard disk drive upside down.



Upgrading the hard disk drive

7. Insert the hard disk drive and its cover into the bay for the hard disk drive; then firmly install them.

Note: Make sure that the label on the hard disk drive faces the bottom of the computer.



8. Tighten the screws.
9. Put the battery back in place.
10. Connect the ac adapter and cables to the computer; then turn it on.

Getting 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.

Information about your IBM computer and preinstalled software, if any, is available in the documentation that comes with your computer. That documentation includes printed books, online books, README files, and help files. In addition, information about IBM products is available on the World Wide Web and through the IBM Automated Fax System.

For technical assistance with the installation of, or questions related to, Service Packs for your preinstalled Microsoft Windows product, refer to the Microsoft Product Support Services Web site at support.microsoft.com/directory/, or you can contact the IBM HelpCenter. Some fees might apply.

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.

If you select **Profile** from the support page, you can create a customized support page that is specific to your hardware, complete with Frequently Asked Questions, Parts Information, Technical Hints and Tips, and Downloadable Files. In addition, you can choose to receive e-mail notifications whenever new information becomes available about your registered products.

You also can order publications through the IBM Publications Ordering System at

www.elink.ibm.link.ibm.com/public/applications/publications/cgibin/pbi.cgi

Getting help by fax

If you have a touch-tone telephone and access to a fax machine, in the U.S. and Canada you can receive by fax marketing and technical information on many topics, including hardware, operating systems, and local area networks (LANs).

You can call the IBM Automated Fax System 24 hours a day, 7 days a week. Follow the recorded instructions, and the requested information will be sent to your fax machine. In the U.S. and Canada, to access the IBM Automated Fax System, call 1-800-426-3395.

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 PC HelpCenter. 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.
- IBM-supplied TransNote programs - These programs are supported, at no additional charge, for operational and defect-associated issues for 30 days from the first call to the Help Center during your normal hardware warranty period. After 30 days this support is subject to a fee. The IBM TransNote software covered under this agreement includes: Ink Manager Pro, Ink Viewer Utility, IBM Ink Transfer™ Utility, InkSync (a function inside Ink Transfer Utility), Ink Clipboard viewer, ThinkScribe Notepad Properties Utility, ThinkScribe Update Utility, TouchBoard (Software Keyboard), and Ink Calendar Support Utility.

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 (except as noted above under “IBM-supplied TransNote programs”)
- Configuration of BIOS as part of an installation or upgrade
- Changes, modifications, or upgrades to device drivers (except as part of the warranty problem determination process)
- Installation and maintenance of network operating systems (NOS)
- Installation and maintenance of application programs (except as noted above under “IBM-supplied TransNote 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 HelpCenter telephone numbers and hours of operation, visit the Support Web site at www.ibm.com/pc/support.

Country or region	Language	Telephone Number
Argentina	Spanish	11-4717-4357
Australia	English	1300-130-426
Austria	German	01-54658-5060
Belgium	Dutch	02-714 35 70
	French	02-714 35 15
Brazil	Portuguese	55-0800 78 48 31
Canada	English / French	1-800-565-3344
		416-383-3344
Chile	Spanish	800-203300
China	Mandarin	800-810-1818
Colombia	Spanish	9-800-18811
		623-2300
Denmark	Danish	35 25 02 91
Ecuador	Spanish	2-565-130
Finland	Finnish	9-22 931 840

Getting service

France	French	01-69 32 40 40
Germany	German	069-6654 9040
Hong Kong	Cantonese	2825-6900
Ireland	English	01-815 9202
Italy	Italian	02-482 9202
Japan	Japanese	0120-887-870
Luxembourg	French	298-977 5063
Mexico	Spanish	01-800-426-1000 387-5991
Netherlands	Dutch	020-504 0501
New Zealand	English	0800-446-149
Norway	Norwegian	23 05 32 40
Peru	Spanish	349-0050
Portugal	Portuguese	21-791 51 47
Spain	Spanish	91-662 4916
Sweden	Swedish	08-751 52 27
Switzerland	German / French / Italian	0848-80 52 52
Taiwan	Mandarin	886-2-2725-9799
United Kingdom	English	01475-555 055
United States	English	1-800-772-2227

Appendix. A. Product warranty and notices

Warranty Statements

The warranty statements consist of two parts: Part 1 and Part 2. Part 1 varies by country. Part 2 is the same for both statements. Be sure to read both the Part 1 that applies to your country and Part 2.

- **United States, Puerto Rico and Canada (Z125-4753-05 11/97)**(Part 1 — General Terms on page 49)
- **Worldwide except Canada, Puerto Rico, Turkey and United States (Z125-5697-01 11/97)**(Part 1 — General Terms on page 52)
- **Worldwide Country-Unique Terms**(Part 2 — Country-Unique Terms on page 56)

IBM Statement of Limited Warranty for United States, Puerto Rico and Canada (Part 1 - General Terms)

*This Statement of Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. **The terms of Part 2 may replace or modify those of Part 1.** The warranties provided by IBM in this Statement of Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. 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. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.*

Machine - IBM ThinkPad TransNote and the Battery Pack

Warranty Period* One Year

Battery Pack: One Year

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

The IBM Warranty for Machines IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM’s Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, without charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

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. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT WARRANTIES OF ANY KIND.**

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

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

IBM or your reseller provides certain types of repair and exchange service, either at your location or at a service center, to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. IBM may repair the failing Machine or exchange it at its discretion.

When 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.

Any feature, conversion, or upgrade IBM or your reseller services must be installed on a Machine which is 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. 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.

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 problem determination, problem analysis, and service request procedures that IBM or your reseller provides,
 - b. secure all programs, data, and funds contained in a Machine,
 - c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations, and
 - d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine 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 is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

Limitation of Liability 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), 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 greater of U.S. \$100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

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 LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

IBM Statement of Warranty Worldwide except Canada, Puerto Rico, Turkey and United States (Part 1- General Terms)

This Statement of Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. The terms of Part 2 may replace or modify those of Part 1. The warranties provided by IBM in this Statement of Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. 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. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

Machine - IBM ThinkPad TransNote and the Battery Pack

Warranty Period* One Year

Battery Pack: One Year

**Elements and accessories are warranted for three months. Contact your place of purchase for warranty service information. Some IBM Machines are eligible for On-site warranty service depending on the country where service is performed.*

The IBM Warranty for Machines IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, without charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

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. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR

LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service To obtain warranty service for the Machine, contact your reseller or IBM. You may be required to present proof of purchase.

IBM or your reseller provides certain types of repair and exchange service, either at your location or at a service center, to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. IBM may repair the failing Machine or exchange it at its discretion.

When 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.

Any feature, conversion, or upgrade IBM or your reseller services must be installed on a Machine which is 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. 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.

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 problem determination, problem analysis, and service request procedures that IBM or your reseller provides,
 - b. secure all programs, data, and funds contained in a Machine,
 - c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations, and
 - d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine 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 is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

Limitation of Liability 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), 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 greater of U.S. \$100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

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 LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR

RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Part 2 - Worldwide Country-Unique Terms

ASIA PACIFIC

AUSTRALIA: The IBM Warranty for Machines: 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 legislation and are only limited to the extent permitted by the applicable legislation.

Extent of Warranty: The following replaces the first and second sentences of this Section: The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, operation in other than the Specified Operating Environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible.

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, 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.

PEOPLE'S REPUBLIC OF CHINA: Governing Law: The following is added to this Statement: The laws of the State of New York govern this Statement.

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;
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 Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

NEW ZEALAND: The IBM Warranty for Machines: 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.

EUROPE, MIDDLE EAST, AFRICA (EMEA)
The following terms apply to all EMEA countries.

The terms of this Statement of Warranty apply to Machines purchased from an IBM reseller. If you purchased this Machine from IBM, the terms and conditions of the applicable IBM agreement prevail over this warranty statement.

Warranty Service: If you purchased an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, 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 purchased an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, 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.

The applicable laws, Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided. However, the laws of Austria govern this Statement if the warranty service is provided in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Federal Republic of Yugoslavia, Georgia, Hungary, Kazakhstan, Kirghizia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, and Ukraine.

The following terms apply to the country specified:

EGYPT: Limitation of Liability: The following replaces item 2 in this Section:

2. 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.

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: The IBM Warranty for Machines: 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 six months.

In case IBM or your reseller are 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.

Extent of Warranty: The second paragraph does not apply.

Warranty Service: 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.

Production Status: The following paragraph replaces this Section:

Each Machine is newly manufactured. It may incorporate in addition to new parts, re-used parts as well.

Limitation of Liability: The following is added to this Section:

The limitations and exclusions specified in the Statement of Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

In item 2, replace "\$100,000" with "1.000.000 DEM".

The following sentence is added to the end of the first paragraph of item 2:

IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

IRELAND: Extent of Warranty: 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 items one and two of the first paragraph of this Section:

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages, up to the greater of Irish Pounds 75,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section:

IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY: Limitation of Liability: The following replaces the second sentence in the first paragraph:

In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: (item 1 unchanged) 2) as to any other actual damage arising in all situations involving non-performance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

The following replaces the second paragraph of this Section:

Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: (items 1 and 2 unchanged) 3) indirect damages, even if IBM or your reseller is informed of their possibility.

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.

TURKIYE: Production Status: The following replaces this Section:

IBM fulfills customer orders for IBM Machines as newly manufactured in accordance with IBM's production standards.

UNITED KINGDOM: Limitation of Liability: The following replaces items 1 and 2 of the first paragraph of this Section:

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to the greater of Pounds Sterling 150,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

The following item is added to this paragraph:

3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section:

IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default will be limited to damages.

NORTH AMERICA

CANADA: Warranty Service: The following is added to this Section:

To obtain warranty service from IBM, call **1-800-565-3344**.

UNITED STATES OF AMERICA: Warranty Service: The following is added to this Section:

To obtain warranty service from IBM, call **1-800-772-2227**

Notices

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

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

Processing date data

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.

IBM cannot take responsibility for the date data processing capabilities of non-IBM products, even if those products are preinstalled or otherwise distributed by IBM. You should contact the vendors responsible for those products directly to determine the capabilities of their products and update them if needed. This IBM hardware product cannot prevent errors that might occur if software, upgrades, or peripheral devices you use or exchange data with do not process date data correctly.

The foregoing is a Year 2000 Readiness Disclosure.

References to Web site addresses

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

ThinkPad TransNote, model number 2675

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 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

Industry Canada Class B Emission Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à 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.

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

This product satisfies the Class B limits of EN 55022.

Telecommunication notices

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

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

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

2. The built-in modem is built into the ThinkPad computer. It complies with Part 68 of the FCC Rules. A label is affixed to the bottom of the computer that contains, among other things, the FCC registration number, USOC, and Ringer Equivalency Number (REN) for this equipment. If these numbers are requested, look at the label and provide this information to your telephone company.
3. The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your number is called. In most, but not all, areas, the sum of the RENs of all devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN (REN:0.7), you should call your local telephone company to determine the maximum REN for your calling area.
4. If the built-in modem causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.
5. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.
6. If you experience trouble with this built-in modem, contact your IBM Authorized Seller, or the IBM Corporation, 500 Columbus Avenue, Thornwood, NY 10594, 1-800-772-2227, for repair/warranty information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected, or until you are sure the equipment is not malfunctioning.

7. No customer repairs are possible to the modem. If you experience trouble with this equipment, contact your Authorized Seller or the IBM Corporation for information.
8. The modem may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.
9. When ordering network interface (NI) service from the Local Exchange Carrier, specify service arrangement USOC RJ11C.

Fax Branding

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

Industry Canada requirements

Notice

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

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of communication. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

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

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

Caution

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

The **Ringer Equivalent Number** (REN:0.3) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Number of all the devices does not exceed 5.

Avis

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

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

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

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

Avertissement

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

L'indice de charge (IC) assigné à chaque dispositif terminal indique (REN:0.3), pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 5.

Notice for European Union countries

The built-in modem equipment has been approved to Council Decision 98/482/EC - (TBR 21) for pan-European single terminal connection to the Public Switched Telephone Network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful problems; you should contact your equipment supplier in the first instance.

Notice for Australia

The following notice applies when using the telephony functions:

WARNING: FOR SAFETY REASONS, ONLY CONNECT EQUIPMENT WITH A TELECOMMUNICATIONS COMPLIANCE LABEL. THIS INCLUDES CUSTOMER EQUIPMENT PREVIOUSLY LABELLED PERMITTED OR CERTIFIED.

Notice for Users in New Zealand

The modem in this ThinkPad is set up for Tone Dialing. Users should only select Pulse Dialing if they are connecting to the Telecom NZ network via a PBX or other systems which requires Pulse Dialing. Pulse Dialing is required only for a small number of obsolescent PBX or similar systems.

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment is not capable, under all operating conditions, of correct operation at the higher speeds for which it is designed. Telecom will accept no responsibility should difficulties arise in such circumstances.

This device is equipped with pulse dialling while the Telecom standard is DTMF tone dialling. There is no guarantee that Telecom lines will always continue to support pulse dialling.

Use of pulse dialling, when this equipment is connected to the same line as other equipment, may give rise to bell tinkle or noise and may also cause a false answer condition. Should such problems occur, the user should NOT contact the Telecom Faults Service.

This equipment shall not be set to make automatic calls to the Telecom '111' Emergency Service.

This equipment should not be used under any circumstances which may constitute a nuisance to other Telecom customers.

Warning notices to New Zealand users of the built-in modem

Of the two following notices, see the one that bears the approval numbers shipped with your built-in modem.

For the modem with approval number PTC 211/99/020:

- The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.
- This equipment is not capable, under all operating conditions, of correct operation at the higher speeds for which it is designed. Telecom will accept no responsibility if difficulties arise in such circumstances.
- This device is equipped with pulse dialling, whereas the Telecom standard is DTMF tone dialling. There is no guarantee that Telecom lines will always continue to support pulse dialling.
- Use of pulse dialling, when this equipment is connected to the same line as other equipment, may give rise to bell tinkle or noise and may also cause a false answer condition. If such problems occur, the user should NOT contact the Telecom Faults Service.
- This equipment shall not be set to make automatic calls to the Telecom 111 Emergency Service.
- This equipment might not provide for the effective hand-over of a call to another device connected to the same line.
- This equipment must not be used under any circumstances that might constitute a nuisance to other Telecom customers.
- Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the software. In order to operate within the limits for compliance with Telecom's specifications, the software shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing.
- All persons using this device for recording telephone conversations shall comply with New Zealand law. This requires that at least one party to the conversation is to be aware that it is being recorded. In addition, the Principles enumerated in the Privacy Act 1993 shall be complied with in respect to the nature of the personal information collected, the purpose for its collection, how it is to be used, and what it disclosed to any other party.

For the modem with approval number PTC 211/00/092:

- The grant of a Telepermit for a device in no way indicates Telecom acceptance of responsibility for the correct operation of that device under all operating conditions. In particular the higher speeds at which this modem is capable of operating depend on a specific network implementation which is only one of many ways of delivering high quality voice telephony to customers. Failure to operate should not be reported as a fault to Telecom.
- In addition to satisfactory line conditions a modem can only work properly if:
 - it is compatible with the modem at the other end of the call, and
 - the application using the modem is compatible with the application at the other end of the call - e.g. accessing the Internet requires suitable software in addition to a modem.

Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specifications.

1. a) There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and b) The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.
2. Where automatic calls are made to different numbers, the equipment shall go on-hook for a period of not less than 5 seconds between the end of one attempt and the beginning of the next attempt.
3. The equipment shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing:
 - a. A person calling your modem will hear a short burst of ringing before the modem answers. This confirms that the call has been successfully switched through the network.
 - b. Caller identification information (which occurs between the first and second ring cadences) is not destroyed.
4. The pulse dialing option is not compatible with the Telecom Network and must not be used.

This equipment shall not be used in any circumstances which may constitute a nuisance to other Telecom Customers.

The following setup AT commands should be used for correct operation:

```
ATI9 = North America  
AT% T19,0,19(North America)  
AT%T21,B,2  
AT%T21,B,6
```

NOTE THAT FAULT CALLOUTS CAUSED BY FAILURE TO ADHERE TO THE ABOVE NOTES MAY INCUR A CHARGE FROM TELECOM.

Trademarks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

IBM	TransNote
ThinkPad	ThinkScribe
PS/2	Ink Manager
HelpCenter	Ink Transfer
TrackPoint	TouchBoard

Microsoft and Windows are trademarks of Microsoft Corporation in the United States and/or other countries.

Pentium is a trademark of Intel Corporation in the United States and/or other countries. (For a complete list of Intel trademarks, see www.intel.com/tradmarx.htm)

Other company, product, or service names may be the trademarks or service marks of others.



Part Number: 12P1416

(1P) P/N: 12P1416

