



*PEN\*KEY<sup>R</sup> 6632 Pen Computer*

# ***USER'S GUIDE***

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*Revision A*  
*August 1998*

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- " 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 cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
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- " Ne jamais installer de prise téléphonique dans un endroit humide à moins que la prise ait été spécifiquement conçue pour être utilisée dans les endroits humides.
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- " User de prudence lors de l'installation ou de la modification de lignes téléphoniques.
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**WARNING:** *The lithium ion battery may explode if replaced incorrectly. Replace only with the same or equivalent type.*



**ADVERTISSEMENT:** *La batterie au lithium peut exploser si elle est remplacée de manière incorrecte. Elle ne doit être remplacée que par une batterie identique ou similaire.*



**WARNING:** *Lithium ion batteries may explode or catch fire if overcharged due to improper dock installation.*



**ADVERTISSEMENT:** *Les batteries au lithium peuvent exploser ou prendre feu si elles sont trop chargées à cause d'une mauvaise installation de la station d'accueil.*



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# **Section 1**

## **Overview**

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### ***Introduction: About this Manual***

This manual is divided into six sections.

- Section 1 Overview
- Section 2 Using the Pen Computer for the First Time
- Section 3 Software
- Section 4 Operating the Pen Computer
- Section 5 Connecting Peripheral Equipment
- Section 6 Troubleshooting

## **Summary of Sections**

### ***Section 1, General Information***

Provides a general description of the Pen\*Key 6632 Pen Computer, including its main functions.

### ***Section 2, Using the Pen Computer for the First Time***

Provides a step-by-step explanation of how to set up and operate the pen computer so that you can begin to use it quickly.

### ***Section 3, Software***

This section describes how to use the setup utility, and also provides an overview of the software included with the pen computer, and an explanation of the power management functions, etc.

### ***Section 4, Operating the Pen Computer***

This section explains the operation of the power supply, the hard disk drive, the display system, the PC card slots, and other functions.

### ***Section 5, Connecting Peripheral Equipment***

This section tells how to expand the system, including how to connect a printer or a floppy disk drive.

## ***Section 6, Troubleshooting***

This section explains what to check if the pen computer does not operate correctly.

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## Overview

### *The PEN\*KEY<sup>R</sup> 6632 Pen Computer*



*Figure 1-1  
The PEN\*KEY 6632 Pen Computer*

The PEN\*KEY 6632 Pen Computer is a compact, light-weight mobile computer. It features:

- Windows 95 operating system, and supports a variety of commercial software development environments.
- Sophisticated power management functions that conserve battery power by automatically blocking the supply of power and clock signals to peripheral devices and system components that are not currently in use.



- Serial and parallel devices, a floppy disk drive support, an external keyboard and an external mouse.
- PC Card slots that can accommodate Type I/II or Type III PC Cards.
- Sound Blaster Pro and Windows sound system-compliant 16-bit audio system, an audio input/output jack, and a monaural speaker.
- 8.4-inch color TFT liquid crystal display with 640 x 480 dots that can display up to 65,536 colors.
- Numeric keypad input
- Accepts pen input thanks to its highly effective handwriting recognition capabilities.
- Support for IrDA for infrared communications.

## Computer Description

### Opening the Top Cover

Perform the procedure described below to open the top cover.

1. Slide open the lock located on the top cover of the pen computer, then open the cover.

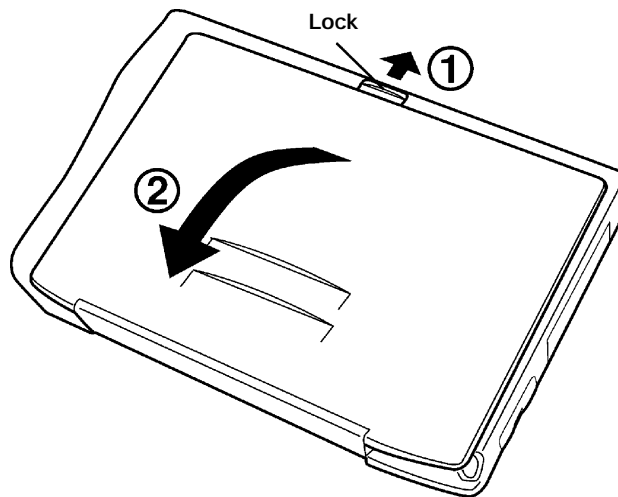
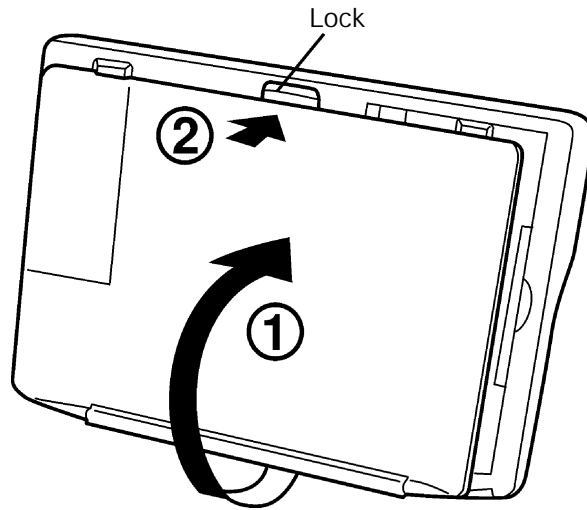


Figure 1-2  
Top Cover

## Lock

2. Swing the top cover around until the lock on the bottom of the pen computer clicks, indicating the top cover is secured in place.



*Figure 1-3  
Locking the Top Cover*

**CAUTION:** Do not block the air vents on the bottom of the pen computer with the top cover for an extended period of time. Doing so could cause the internal temperature of the pen computer to rise, resulting in damage to it.

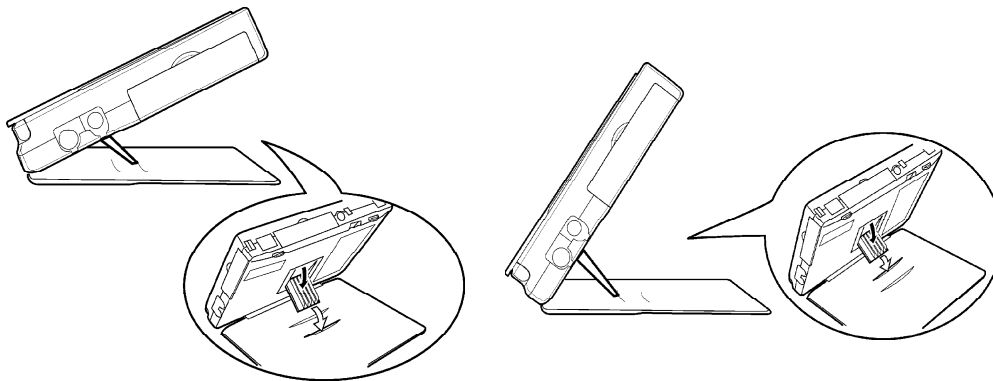
When using the pen computer on a desk, unfold the stand so that the unit is raised.

**NOTE:** *To close the top cover, slide open the lock on the bottom of the pen computer, and then reverse the process of opening the top cover.*

The top cover can also be used as a base for the stand.

Unfold one of the stands on the bottom of the pen computer, and then set it in one of the notches on the top cover.

The stands can be adjusted so that the pen computer stands at an angle of 35\_ or 55\_.



*Figure 1-4*  
**Top Cover Stand**

---

## Removing the Top Cover

Perform the procedure described below to remove the top cover.

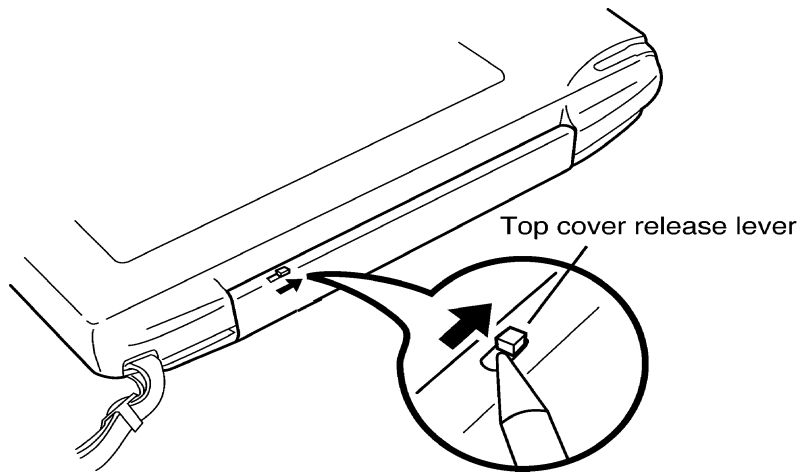
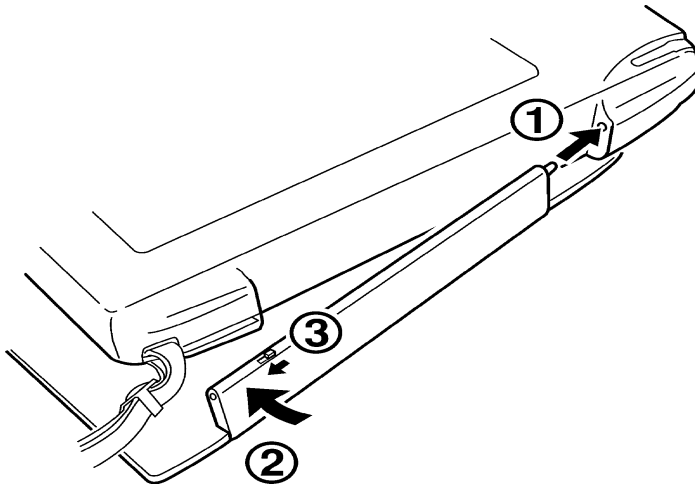


Figure 1-5  
Top Cover Release Lever

### Top Cover Release Lever

- Slide the release lever in the direction indicated by the arrow, then release the top cover.
- To re-attach the top cover, simply reverse the process by which you removed it.



*Figure 1-6*  
*Removing the Top Cover*

**CAUTION:** When carrying the pen computer, be careful not to let it bump into things. Bumping the display in particular can damage the LCD.

## Front View

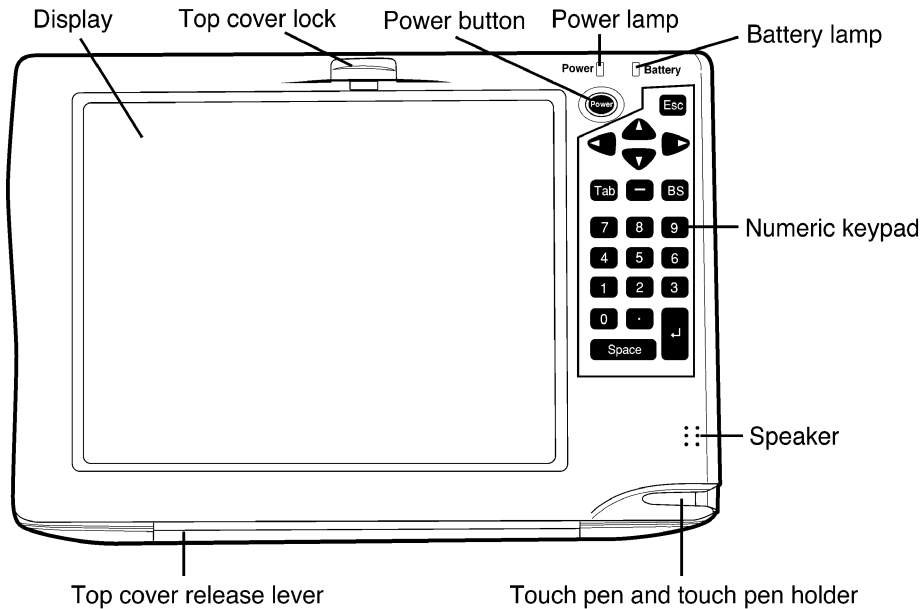


Figure 1-7  
Front View

## Power Button

In addition to turning the power on and off, the power button can be used as a suspend/resume switch, based on the setup settings.

Depending on the state that the pen computer is in, the power button might not function. In that case, use the RESET switch on the bottom of the pen computer to turn off the power.

**NOTE:**

*WAIT AT LEAST 10 SECONDS BEFORE PRESSING THE POWER BUTTON AGAIN AFTER PLACING THE PEN COMPUTER INTO "SUSPEND."*

See page 1-17 for a description of the bottom of the pen computer. If pressing the RESET switch also fails to turn off the power, the pen computer is malfunctioning. Disconnect the AC adapter and the internal battery pack, and then contact your sales representative or an Intermec service center.



## ***Power Lamp***

When this lamp is green, the pen computer is operating.

When this lamp is red, the pen computer is in the suspend-to-RAM state.

When this lamp is green, and the red lamp is flashing, the pen computer is accessing the hard drive.

If this lamp is off, the pen computer is either not operating or is in the suspend-to-disk state.

**B CAUTION:** Do not disconnect both the AC adapter/recharger and the battery pack while the power lamp is red or green. Doing so will cause the program and data in memory to be lost.

## ***Battery Lamp***

When this lamp is green, it indicates that power is being supplied by the AC adapter/recharger. In addition, if the battery pack is installed in the pen computer, the battery pack is being charged too.

When this lamp is off, it indicates that the pen computer is running off battery power.

When this lamp is red, it indicates that the battery voltage has dropped and that there is little battery capacity remaining.

## ***Speaker***

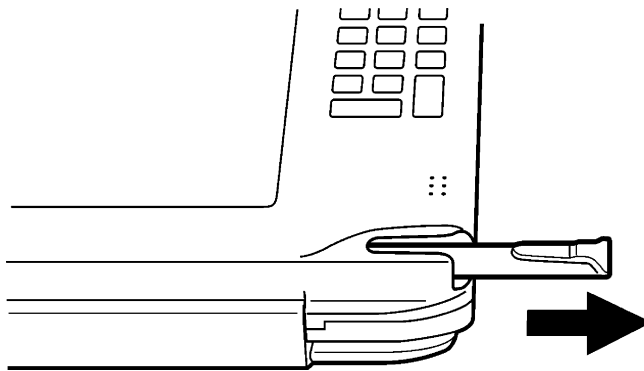
The speaker outputs audio from the internal SoundBlaster-compatible chipset. When the audio input/output jack is used for headphones or line output, the internal speaker is disconnected.

**B CAUTION:** Do not place a floppy disk, hard disk, or other magnetic media on top of the speaker. The magnet in the speaker could damage data on the disk.

## Pen Stylus

To remove the pen stylus, pull it straight out to the right.

To place the pen back in the pen holder, align the projection on the pen with the groove in the pen holder and then gently slide the pen into the holder. Make sure that you push the pen all of the way in until it locks in place, so that it will not fall out unexpectedly.

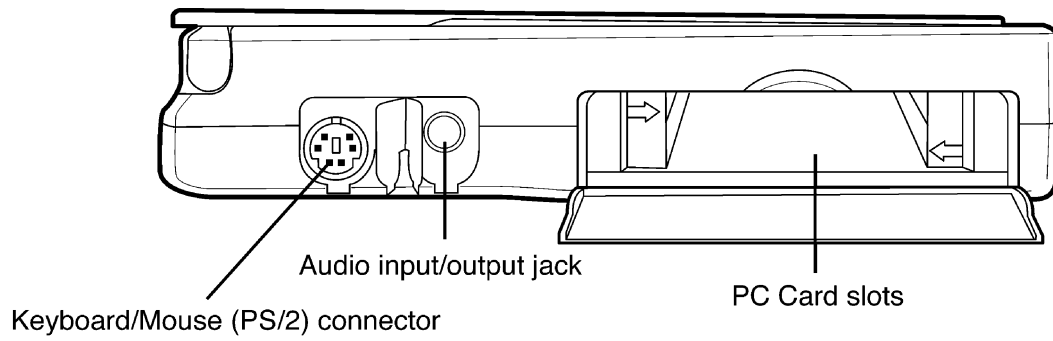


*Figure 1-8*  
**Pen Removal**

**NOTE:** *Clean the tip of the pen stylus and the screen before using the it on the screen. If you use the pen on the screen while either is dirty, the display could become scratched or the pen might not move smoothly on the display surface.*

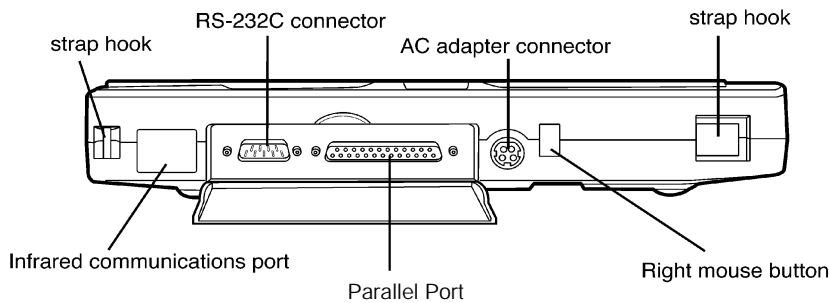
**CAUTION:** **Use only the pen provided. Do not use a wood pencil, mechanical pencil, or any other sharp object. Doing so will scratch the screen.**

# Side View



*Figure 1-9*  
**Side View**

## Rear View



*Figure 1-10  
Rear View*

### ***Infrared Communications Port***

This port is used by devices that use infrared communications, such as a PDA (personal digital assistant), or certain other computers and IR printers.

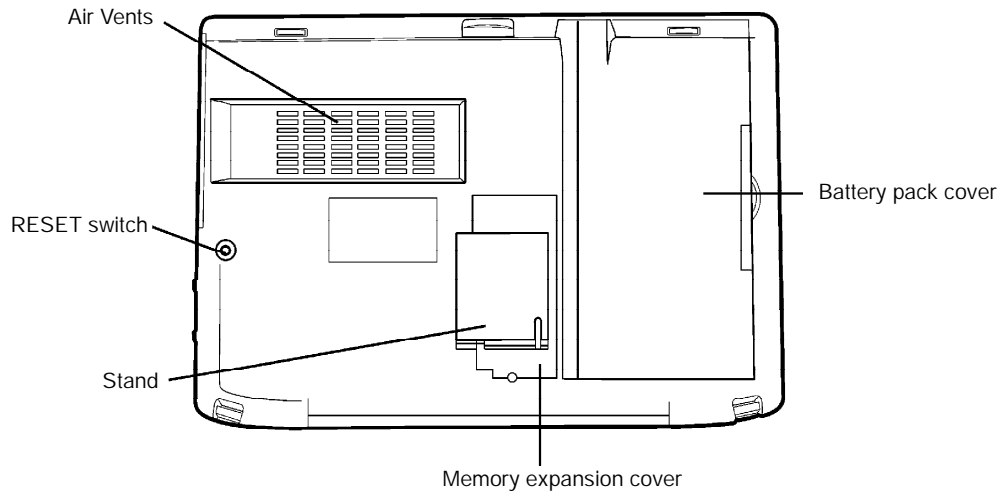
**NOTE:** *The PEN\*KEY 6632 infrared communications capabilities cannot be used while the floppy disk drive is operating, and vice versa.*

**NOTE:** *If the infrared communications port is dirty, wipe it with a dry, soft cloth. Communications errors may result if the port is used while it is dirty.*

### ***Right Mouse Button***

Holding down this button and then tapping the screen has the same function as clicking the right mouse button on a two button mouse.

## Bottom View

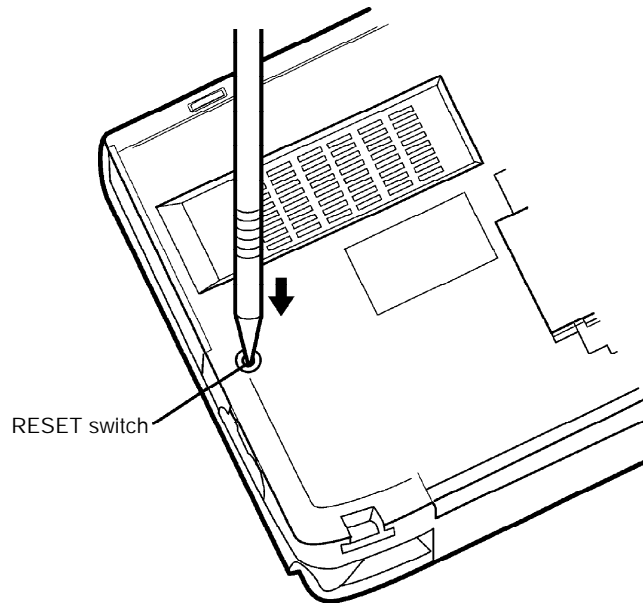


*Figure 1-11*  
**Bottom View**

The air vents allow the pen computer to dissipate internal heat. Do not block these vents with the top cover, or other materials, for an extended period of time.

## RESET Switch

If the power button and software reset do not work, press this switch with the tip of the stylus pen in to turn off the power.



*Figure 1-12*  
**Reset Switch**

**NOTE:** *If the RESET switch is pressed, any data in memory is lost.*

## AC Adapter/Recharger

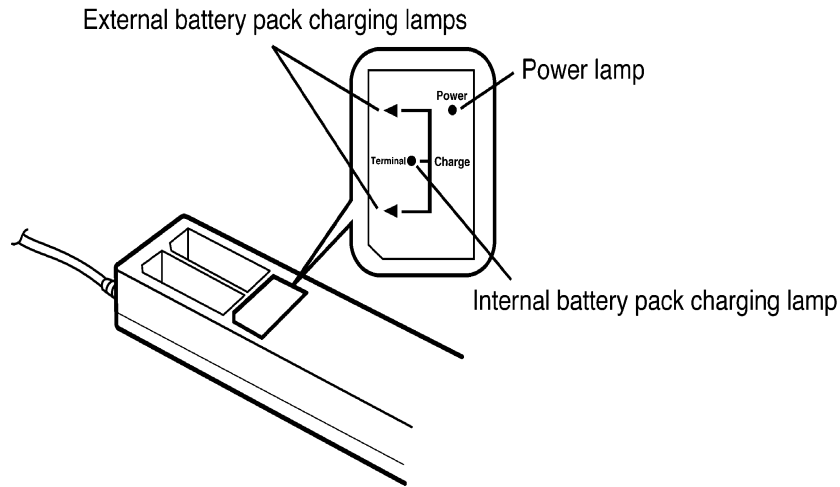


Figure 1-13  
AC Adapter/Recharger

### Power lamp

When this lamp is green, the AC adapter/recharger is connected to an AC power supply.

When this lamp is off, the AC adapter/recharger is not connected to an AC power supply.

If flashing, an abnormality has occurred. Unplug the AC adapter/recharger, wait at least 10 seconds, and then plug it back in. If this lamp still flashes, a malfunction has occurred. Disconnect the AC adapter/recharger and the battery packs, and then contact your sales representative or an Intermec service center.

## ***Internal/External Battery Pack Charging Lamps***

When any of these lamps is orange, the battery pack in question is being charged.

If any of these lamps is off, either charging is complete, or charging will be completed within one hour. These lamps are also off when no battery pack is connected.

If the internal battery pack lamp is flashing slowly, the battery pack in the pen computer is charging. If one of the external battery pack lamps is flashing slowly, the corresponding battery packs installed in the AC adapter/recharger is waiting for charging. If any of these lamps is flashing quickly (at about a 0.3-second interval), an abnormality has occurred. Make sure that the battery packs are installed correctly and that there is no foreign matter on any of the battery terminals. Then unplug the AC adapter/recharger, wait at least 10 seconds, and then plug it back in. If any of the lamps still flashes, a malfunction has occurred. Disconnect the AC adapter/recharger and the battery packs, and then contact your Intermec service center.



## ***Section 2***

# ***Using the Pen Computer for the First Time***

.....

This section provides essential information that you need to know before using the pen computer and also explains the necessary start up procedures.

---

## **Connecting the AC Adapter/Recharger**

Connect the AC adapter/recharger provided with the PEN\*KEY<sup>R</sup> 6632 Pen Computer to the AC adapter connector on the pen computer.

- B CAUTION:** Use the included power cord, or use a minimum 6 foot or 10 foot long maximum UL approved type SPT-2, 2/18 AWG cord which is in conformity with NEC and rated plug 125V 10A and connector 125V 7A.
- B CAUTION:** Always grasp the plug when plugging in or unplugging the power cord.
- B CAUTION:** In order to prevent data from being damaged due to a power failure, etc, when using an AC power supply, always have at least one battery pack installed if possible. (Refer to "Battery Packs" on page 4-1.)

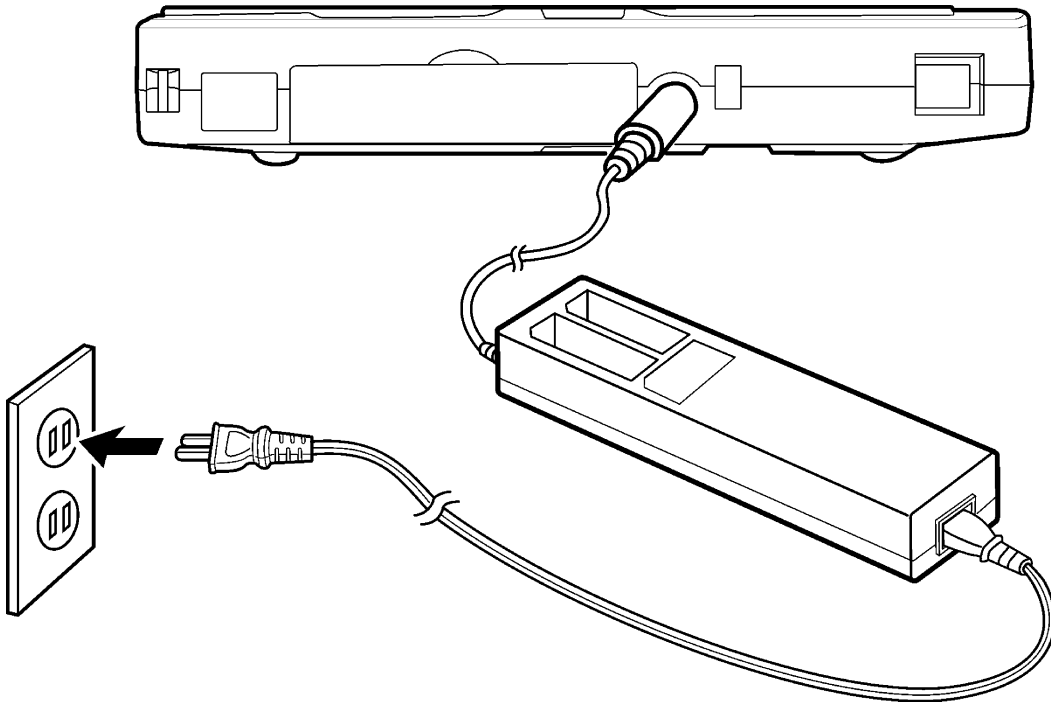


Figure 2-1  
AC Adapter/Recharger

---

## Stylus Pen Input

The PEN\*KEY 6632 Pen Computer is equipped with a pen stylus to select items displayed on the LCD screen and to input text and drawings.

### ***Selecting an Item (pointing)***

To select an item, press the pen on the item to be selected and then remove the pen, without moving it on the display. This operation is called “tapping”, and is equivalent to clicking the left mouse button. This operation is used to select menu items, click buttons and select icons.

Making two consecutive taps is called “double-tapping.” A double-tap is equivalent to double-clicking the left mouse button. This operation is used to start up programs or select functions.

### ***Moving Items/Resizing Windows***

To move an item, touch the pen to the item and then slide the pen over the screen (keeping it in contact with the screen) to the desired location. This operation is called “dragging.” This operation is equivalent to dragging with a mouse, and is used to move windows, etc.

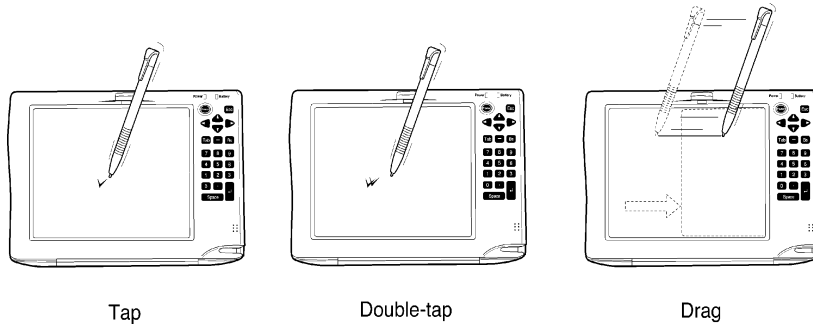
To resize a window, drag the window edge.

### ***Inputting Text***

If your application supports handwriting recognition, you may input text directly with the pen stylus, much like writing with paper and pencil. An optional PS/2 type keyboard is available for QWERTY input.

**NOTE:**

*Because resistive film technology is used in the pen computers' touch panel, the pen will not work properly if you place your hand on the screen while writing with the pen stylus.*



*Figure 2-2  
Pen Operation*

## System Startup

### Startup

1. Press the [POWER] button.

The pen computer automatically executes its Power On Self-Test (POST). This test checks the pen computer's memory, system board and other devices before initiating normal operation.

2. Windows 95 starts up.
3. The first time Windows 95 starts up, perform the Windows 95 setup process. To set up Windows, follow the instructions displayed on the screen.

An icon named "Onscreen Keyboard" is displayed on the setup screen. If you double-click this icon, a keyboard displays on the screen that you can use to input items.

If the keyboard is obstructing part of the display, you can tap the center icon, which appears in the upper right corner of the keyboard; tapping [-] closes up the keyboard so that only the icon is displayed.



4. Input your name, company name, and the product ID from the “Certificate of Authenticity.”
5. Indicate your acceptance of the licensing terms for using Windows 95.
6. Make environment settings, such as the printer, date and time, etc.

After completing the setup process, restart your system.

# Section 3

## Software

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### **General Information**

The PEN\*KEY 6632 pen computer includes a setup utility that stores the basic system configuration and the power management settings. This section explains how to use the setup utility to set up the pen computer and the PEN\*KEY<sup>R</sup> tool.

### **Software Included with the 6632 Pen Computer**

The 6632 pen computer hard disk is preconfigured with the operating system and software before it is shipped from the factory.

The folders on the hard disk are organized as shown below.

- Windows -- Windows 95 system
- CIC handwriting recognition

---

### **Windows 95**

A computer's operating system is the basic software that controls the computer so that it can run application software.

The pen computer uses Microsoft's Windows 95 as its operating system. Application software must be compatible with this operating system in order to run on the pen computer.

For details on Windows 95, refer to the Windows 95 Help function.

---

## **MS-DOS Screen**

Windows 95 provides two types of environments that allow you to start up MS-DOS applications. The symbol "C:>" displayed on these screens is called the "MS-DOS prompt." This prompt indicates that MS-DOS is awaiting input.

### **MS-DOS Prompt**

The MS-DOS prompt is displayed by tapping "MS-DOS Prompt" under "Programs" in the Start menu.

With the MS-DOS prompt, it is possible to make settings such as the font and window size; it is also possible to cut and paste text between MS-DOS applications.

### **MS-DOS Mode**

The MS-DOS mode is displayed by tapping "Restart the computer in MS-DOS mode?" in the dialog box when "Shut Down" is selected from the Start menu.

Compared to the MS-DOS prompt, MS-DOS mode offers better compatibility with MS-DOS applications.

**NOTE:** *For details on the MS-DOS prompt and MS-DOS mode, refer to the Windows 95 Help function.*



## ***Windows 95 Help***

The Help function is one of the main information resources for Windows 95. There are two types of help: help that explains specific operating procedures, and help that explains an item displayed on the screen.

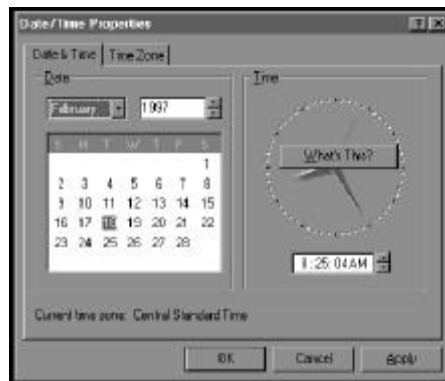
### ***Help With Operating Procedures***

A list of help topics is displayed when you tap on “Help” in the Start menu. The window changes to a search window if you tap on either the “Contents” or the “Keyword” tab at the top of the dialog box.



## Help Regarding Items on the Screen

If a window has a [?] button, you can use it to see explanations of various items on the screen. Tap [?] and then tap the item in question.



---

## Changing the Screen Background

A variety of different types of “wallpaper” (bit-mapped files for display in the background) are included in the pen computer. You can select whichever one suits your own taste.

1. Under “Settings” on the Start menu, tap “Control Panel.”
2. Double-tap “Display.”
3. Specify a file from the “Wallpaper” list.

The names of wallpaper files created for the pen computer are listed below. You can use “Browse” to specify one of these files.

- 4) Tap [OK].

**NOTE:**

*Because the 1.6 million-color wallpapers use a lot of memory, some application software might not run if one of these is selected. In that event, specify a different type of wallpaper.*

---

## Setup Utility

- The Setup utility is used to change settings in the following types of situations:
- When setting the date or time
- When making power management settings
- When expanding the system by adding peripherals

**NOTE:** *The settings made through the setup utility are stored in a special type of memory called "CMOS RAM." Because the contents of this memory are maintained by the internal backup battery, these settings are not lost even if the power is turned off or the system is reset. When the system power is turned on, the system reads the information stored in CMOS RAM and compares the information with that obtained through the environment check performed by the Power On Self-Test (POST). If an error is detected, an error message is displayed on the screen and instructions to execute the Setup utility are also displayed.*

**NOTE:** *The pen computer has an internal lithium ion battery that it uses as a backup power supply for CMOS RAM. If the pen computer is not used for an extended period (at least six months), the backup battery may become exhausted and the contents of CMOS RAM will be lost. The backup battery can be recharged in about eight hours, either by installing a fully charged battery pack (PN:871-006-020) in the pen computer, or by connecting the AC adapter/recharger.*

## PEN\*KEY Tool

The PEN\*KEY tool confirms and sets the backlight, the battery, suspend execution, key changes, etc.



There are two methods for starting up this tool:

- Tap on either the battery icon or the PEN\*KEY tool icon in the Windows 95 taskbar, if they are displayed.

When the system is running off of AC power:

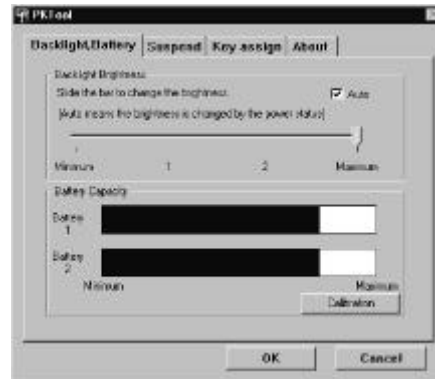


- Tap the PEN\*KEY tool in the Program menu under the Start menu.

## Adjusting the Backlight and Checking the Remaining Battery Capacity

- 1) Tap on the Backlight/Battery tab.
- 2) The backlight brightness can be set to one of four levels. To adjust the brightness, tap the desired level.
- 3) To adjust the brightness to that level, tap [OK]. To keep the previous level of brightness without making any changes, tap [Cancel].

When the system is running off of battery power:

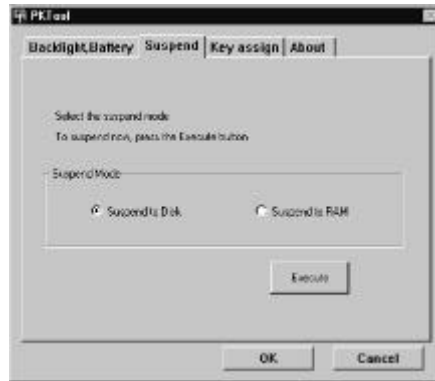


The Autocheck button changes the brightness of the backlight when AC power is connected, in the same way as the “Auto” setting in the BIOS setup. If this checkbox is checked, the backlight brightness cannot be adjusted.

- **NOTE:** *The remaining battery capacity is not displayed if the AC adapter/recharger is connected.*
- **NOTE:** *For details on how to check the remaining capacity of a battery pack, refer to “Remaining Battery Pack Capacity Display” on page 4-7.*
- **NOTE:** *The backlight brightness can be adjusted temporarily by holding down the “right mouse button” on the rear of the pen computer while pressing [LEFT ARROW] and [RIGHT ARROW]. However, there are some cases where the brightness cannot be set in this manner, and the setting cannot be saved.*

## Suspend Execution

1. Tap the Suspend Execution tab.
2. Tap the circle in front of “Suspend.”
3. Tap “Execute Suspend.”
4. The suspend operation is executed.





## Changing the Numeric Keypad Assignments

Changing the assignments of the keypad to the right of the display can be performed by doing the following. For example, if an application requires “function” keys, the “1” key could be changed to F1, the “2” key could be changed to “F2”, etc.

1. Tap the Key Change tab.
2. Tap the button for the key that is to be changed.



3. Confirm which pen computer key is to be changed.
4. Tap the circle in front of the type: function key, alpha-numeric key, or other.
5. Tap the key to be assigned.
6. After confirming the key to be changed, the type, and the assigned key, tap “Execute.”

To redo any of the selections, tap [STOP].

**NOTE:**

*The changed assignments will still be in effect the next time the system is started up.*

### **Checking the Version of the PEN\*KEY Tool**

- Tap the About tab.

**NOTE:** The version of the PEN\*KEY tool is displayed. This is not the version of the PEN\*KEY hardware.

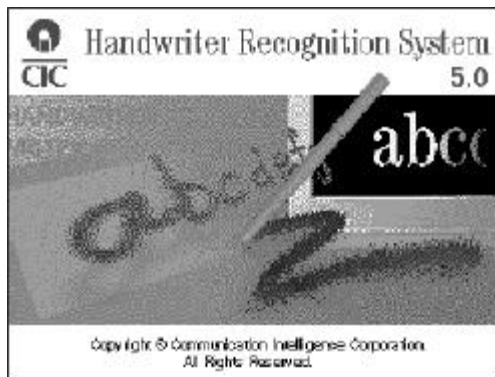
### **Exiting the PEN\*KEY Tool**

Tap either “OK” or “Cancel” at the bottom of the PEN\*KEY tool screen.

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## **CIC Handwriting Recognition**

The Handwriter<sup>R</sup> Recognition System software (HRS) is preinstalled on the PEN\*KEY 6632 and is used with software products enabled for handwriting recognition and verification.



The HRS is supported by Windows for Pen Computing or Windows 95 Pen Services.

## Section 4

# Operating the Pen Computer

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This section explains the functions and usage of the pen computer.

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## Battery Packs

The first time that you install a fresh battery pack, it is necessary to charge it.



**WARNING:** *Use only battery pack PN: 871-006-020 for the PEN\*KEY<sup>R</sup> 6632 Pen Computer. Use of other battery packs or AC adapter/rechargers could result in fire or equipment damage.*

**NOTE:** *Even when using an AC power supply, you should always install at least one battery pack in the pen computer to prevent data loss due to a power failure.*

## Charging Battery Packs

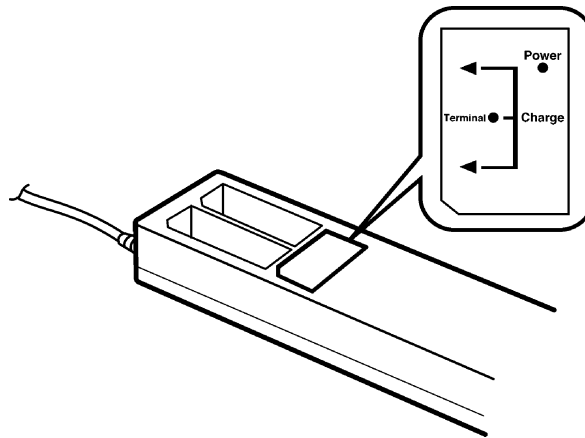
There are three ways to charge battery packs:

- Install a battery pack in the AC adapter/recharger.
- Install a battery pack in the pen computer.
- Install battery packs in both the pen computer and the AC adapter/recharger.

When charging more than one battery pack, the battery pack in the pen computer is charged first.

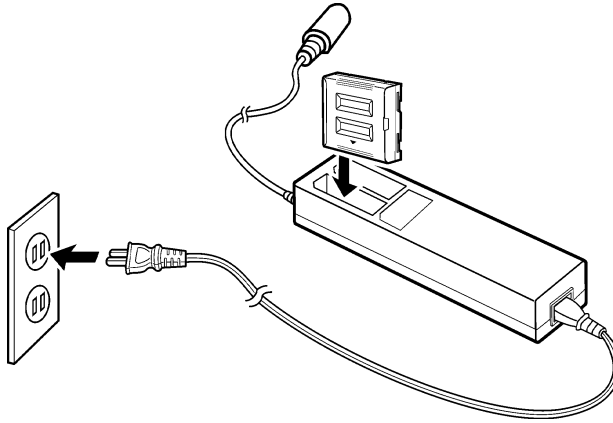
When battery packs are installed in both the pen computer and the AC adapter/recharger, normally the internal battery pack charging lamp on the AC adapter/recharger lights orange to indicate that the internal battery packs (in the pen computer) are being charged, and the external battery pack charging lamps flash slowly (at about a 0.9-second interval) to indicate that the battery packs in the AC adapter/recharger are waiting to be charged.

Once the battery packs in the pen computer are fully charged, the internal battery pack charging lamp turns off and the external battery pack charging lamps light orange, indicating that the battery packs in the AC adapter/recharger are now being charged. Because the battery packs are still not fully charged after the lamps turn off, allow charging to continue for at least an additional hour.



*Figure 4-1*  
**Battery Pack Capacity Check**

## Charging Battery Packs in the AC Adapter/Recharger



*Figure 4-2*  
**Inserting the Battery**

1. Plug the AC power cord of the AC adapter/recharger into an AC power outlet. The power lamp lights green.
2. Install a battery pack in the AC adapter/recharger oriented as shown in the diagram.
3. The external battery pack charging lamp lights orange.
4. When charging is complete, the charging lamp turns off. Because the battery packs are still not fully charged after the lamps turn off, allow charging to continue for at least an additional hour.

About 3.5 hours are required to charge two fully discharged battery packs.

## Charging a Battery Pack in the Pen Computer

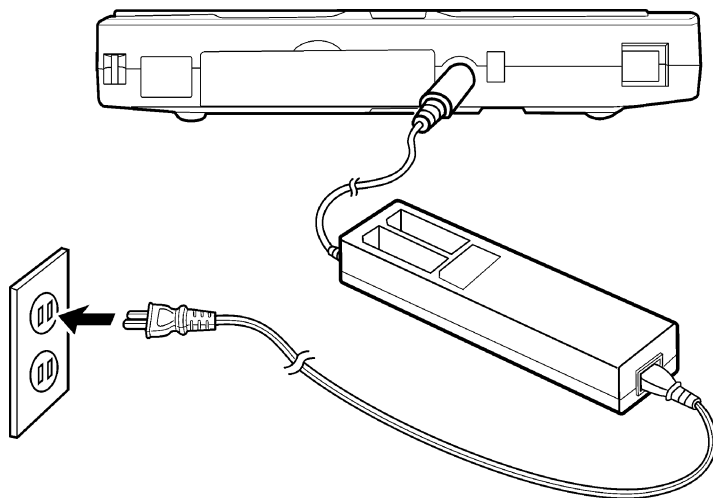


Figure 4-3

### Charging Batteries in the Pen Computer

1. Plug the AC power cord of the AC adapter/recharger into an AC power outlet. The power lamp lights green.
2. Connect the AC adapter/recharger to the pen computer (with a battery pack already installed in the pen computer).
3. The internal battery pack charging lamp lights orange.
4. When charging is complete, the charging lamp turns off.

## Charging Battery Packs in the Pen Computer and AC Adapter/Recharger

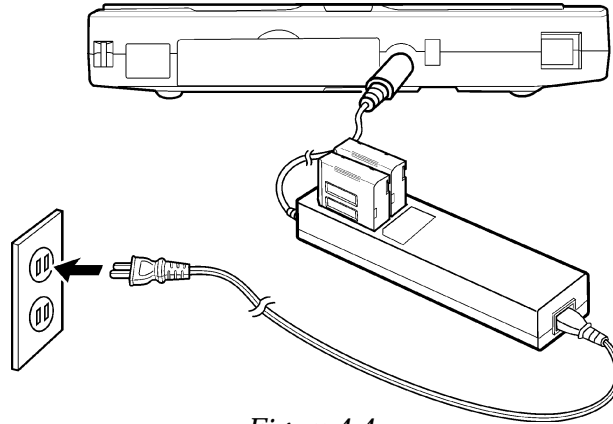


Figure 4-4  
Charging Battery Packs

1. Plug the AC power cord of the AC adapter/recharger into an AC power outlet. The power lamp lights green.
2. Connect the AC adapter/recharger to the pen computer (with a battery pack already installed in the pen computer).
3. Install a battery pack in the AC adapter/recharger.
4. The internal battery pack charging lamp lights orange, and the external battery pack charging lamps start flashing slowly. Once the internal battery packs in the pen computer is charged, the internal battery pack charging lamp turns off. The external battery pack in the AC adapter/recharger is charged next.
5. The external battery pack charging lamp lights orange. When charging is complete, the external battery pack charging lamp turns off. Because the battery packs are still not fully charged after the lamps turn off, allow charging to continue for at least an additional hour.

**NOTE:** *The battery packs in the pen computer are always charged first.*

## Installing the Battery Pack

Install and replace battery packs described in the procedure below.

1. Turn off the pen computer and disconnect the AC adapter/recharger.
2. Place the pen computer face down on a flat surface.
3. Release the catch on the battery pack cover with your finger and open the cover.
4. Insert the battery pack(s) facing in the direction indicated by the arrow.
5. Close the battery pack cover.

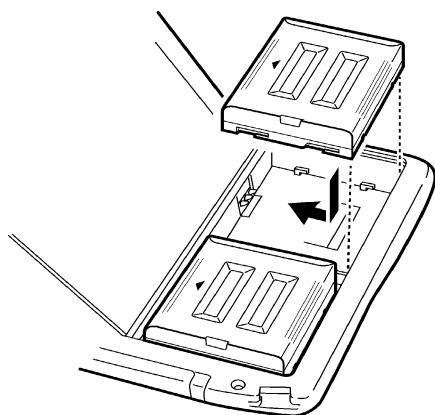


Figure 4-5  
Inserting the Battery

**CAUTION:** If a battery pack is inserted incorrectly, damage to the battery pack or a fire could result.

**CAUTION:** Always be sure to use the specified type of battery pack (PN: 871-006-020).

**NOTE:** To remove the battery pack, simply reverse the installation procedure.



## Remaining Battery Pack Capacity Display

### Confirming the Remaining Battery Pack Capacity

- With the pen computer power off, hold down the [POWER] button; the remaining battery pack capacity is displayed. (When you release the [POWER] button, the pen computer power will turn on.)

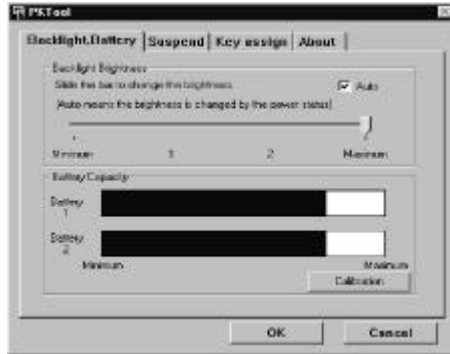


Figure 4-6  
Battery Pack Capacity

In Windows 95, the remaining battery pack capacity can be checked by the following method.

- The battery icon on the taskbar shows a rough check of the remaining battery pack capacity.

The battery mark on the left indicates the remaining capacity of battery 1, and the battery mark on the right indicates the remaining capacity of battery 2.

The remaining capacity of each is indicated by the following colors:

- Light blue: 100% to 75%
- Yellow: 75% to 50%
- Red: 50% to 0%

Tapping on the battery icon starts up the Pen\*Key tool, which can be used to obtain more detailed battery information. (In addition to checking the remaining battery pack capacity, the Pen\*Key tool can also adjust the backlight brightness, set suspend execution, etc. In addition, the icon changes to an AC charger icon when the pen computer is being powered by the AC adapter/recharger. For details, refer to “Pen\*Key Tool” on page 3-8.)

The remaining capacity of each of the two battery packs can be checked by tapping on “Control Panel” under “Settings” in the Start menu and then double-tapping the “Power Management” icon.

If the AC adapter/recharger is connected, the remaining capacity of the battery packs is not displayed.

- Double-tapping on the battery setting panel icon displays the battery meter.

“ **NOTE:** *The remaining capacity that is displayed is based on the battery voltage; some error in the reading might be present under certain conditions. The length of time a battery can power the system will also vary according to how the system is used and which applications are being run, so the indications of the remaining battery capacity should only be used as a rough guide.*

“ **NOTE:** *If a battery pack is being recharged, the display of the remaining battery capacity will not be accurate.*

## ***Insufficient Remaining Battery Pack Capacity***

If the system decides that the battery packs will be exhausted within a few minutes, the battery lamp on the pen computer lights red. The timing by which the insufficient remaining battery pack capacity warning is issued is based on the pen computer's estimate. If a lot of power is being used because the PC card slots, the hard disk drive, or the floppy disk drive are in use, the battery packs may exhaust their remaining capacity faster than the system estimates. If you continue to use the pen computer after the insufficient remaining battery pack capacity warning is issued, the pen computer automatically executes a suspend-to-disk (regardless of the setup setting) and then shuts off the power. The contents of memory are saved in the suspend-to-disk partition on the hard disk. Afterwards, do not turn on the pen computer power until you have either connected the AC adapter/recharger or you have installed a fully charged battery pack.

## Charging and Operating Times

The charging and operating times based on the number of battery packs installed, are shown in the following table.

The operating time varies according to the power management settings, the application software being used, etc.

<b>Number of Battery Packs Used</b>	<b>Charging Time (from fully depleted to fully charged)</b>	<b>Operating Time (from fully charged state)</b>
One battery pack	Approximately 2.5 hours	Approximately 0.8 to 1.5 hours
Two battery packs	Approximately 3.5 hours	Approximately 1.5 to 3 hours

The total charging time when there are two battery packs installed in the pen computer and two battery packs installed in the AC adapter/recharger (for a total of four battery packs, the maximum) is seven hours.

**CAUTION:** The lithium ion batteries used in these battery packs suffer a clear deterioration in performance if they are exposed to high temperatures for an extended period of time. These batteries should be stored in a cool, dry location.

**CAUTION:** In order to prevent the batteries from deteriorating, they should be charged at least once every six months, even if they are not being to be used.

## **PC Cards**

The pen computer has two PC card slots that can accept Type I/II and Type III cards that conform with PCMCIA Rev. 2.1/JEIDA Ver. 4.2. Some examples are described below.

### ***Fax/modem Card***

This device allows the pen computer to be connected to a telephone line and used as a fax or modem.

### ***Network Interface Card***

This device allows the pen computer to connect to a local area network (LAN), such as an Ethernet or an IBM 3270 network.

### ***SCSI Interface Card***

This device is used to connect SCSI devices such as CD-ROM drives and scanners.

### ***ATA Device***

An AT attachment, functions similar to an IDE hard disk drive, is either a rotating or a solid state mass storage device. Even when an ATA device is removed from the pen computer's PC card slot, it does not require an external power supply in order to retain its internal data.

" **NOTE:** *Because these cards require a comparatively large amount of current, the AC adapter/recharger should be used to supply power to the system when they are installed in the pen computer.*

### ***SRAM Memory Card***

This is a static RAM memory device that can be formatted as a floppy disk; a write-protect switch is located on the edge of the card. Even when an SRAM memory card is removed from the pen computer's PC card slot, the card's built-in battery protects the data in the card.

### ***Flash Memory Card***

This is a solid state storage device that works in the same manner as a floppy disk; a write-protect switch is located on the edge of the card. Even when a flash memory card is removed from the pen computer's PC card slot, it does not require an external power supply in order to retain its internal data.

---

## Inserting a PC Card

- Type I/II cards: These types of cards can be installed in either the top or bottom slot. Up to two cards can be installed (one in the top, one in the bottom).
- Type III cards: These types of cards can only be installed in the bottom slot. When one of these cards is installed, the top slot cannot be used.
- ZV-port compliant cards: Only the lower slot can be used.
- CardBus compliant cards: These types of cards can be installed in either the top or bottom slot. Up to two cards can be installed (one in the top, one in the bottom).

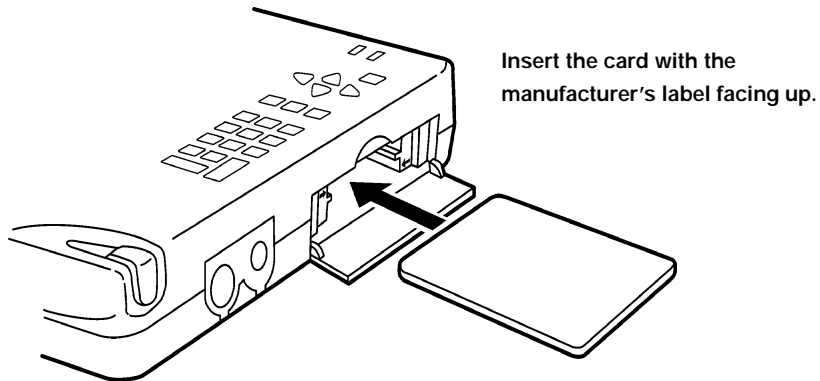
• **NOTE:** *Before inserting a PC card, observe proper orientation and refer to the manual that comes with the PC card.*

• **NOTE:** *Select an unused available IRQ if the PC card requires one. PC cards that use COM3 or COM4 will not work properly in MS-DOS mode because they conflict with COM1 and COM2 on the pen computer.*

• **NOTE:** *PC cards requiring COM3 port should have the "COM Port" setting disabled in the advanced menu setup utility. PC cards requiring COM4 port should have the "IR Port" disabled in the advanced menu setup utility.*

**NOTE:** *The first time that you use a particular PC memory card or ATA card, it is necessary to format them.*

1. Open the PC card slot cover on the right side of the pen computer.
2. Insert the card into the slot, pushing it in as far as it will go.
3. When the card is inserted, the eject button pops out.

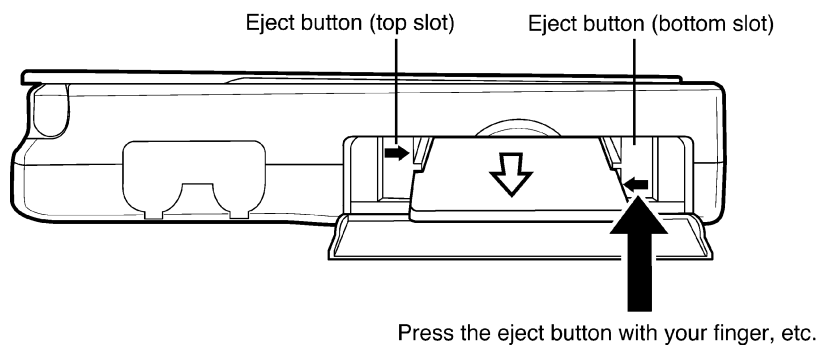


*Figure 4-7*  
**Inserting the PC Card**



## Removing a PC Card

- " 1) Tap "Control Panel" under "Settings" in the Start menu.
- " 2) Double-tap "PC Card (PCMCIA)."
- " 3) In the list, tap the name of the PC card that you want to remove, and then tap [EXIT].
- " 4) If the message "This device can be safely removed" is displayed, tap [OK].
- " 5) Press the PC card eject button. When the edge of the card pops out of the slot, pull out the card and store it properly.



*Figure 4-8*  
**Card Eject Button**



## Section 5

# Connecting Peripheral Equipment

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This chapter explains how to connect peripheral devices to the PEN\*KEY<sup>R</sup> 6632 pen computer. Practically any peripheral devices that can be connected to a serial port, a parallel port, or a PS/2 port can be connected to the pen computer, including a printer, a keyboard, and a mouse.

---

## ***Notes on Handling the Equipment***

The pen computer components are vulnerable to damage from static electricity. When handling or connecting any of the equipment, observe the following precautions.

- Before adding a device to the system, always be sure to turn off the power and to disconnect the AC adapter/recharger.
- Components in expansion devices and the pen computer can be damaged by static electricity. Before installing an expansion device, first touch a metal object in order to drain away any static electric charge built up in your body.
- While installing a device, be careful not to touch the pins or connectors of the expansion device.
- Do not remove any antistatic material covering an expansion device until the last possible moment before installing the device.
- When storing an expansion device, cover it with the original antistatic material or with other conductive, protective material such as aluminum foil.
- After removing a RAM board from its anti-static bag, place it on a grounded surface.
- Do not touch the integrated circuits on a RAM board.

### ***Storing the battery packs***

The lithium ion batteries used in the battery packs suffer a clear deterioration in performance if they are exposed to high temperatures for an extended period of time. These batteries should be stored in a cool, dry location.

In order to prevent the batteries from deteriorating, they should be charged at least once every six months, even if they are not going to be used.

## Connecting Peripheral Equipment

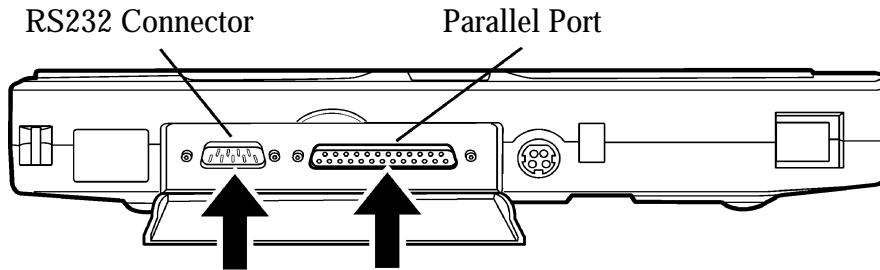


Figure 5-1  
Printer/Floppy Drive Connectors

**CAUTION:** When connecting devices and cables, always be sure to turn off the power for the pen computer first.

1. Turn off the power for both the pen computer and the peripheral device.
2. Open the connector cover on the back of the pen computer, and confirm which connector you want to use.
3. Connect the cable for the peripheral device to the pen terminal.
4. Tighten the two screws on the cable connector.
5. Turn on the power for both the pen computer and the peripheral device.

## ***Serial Devices***

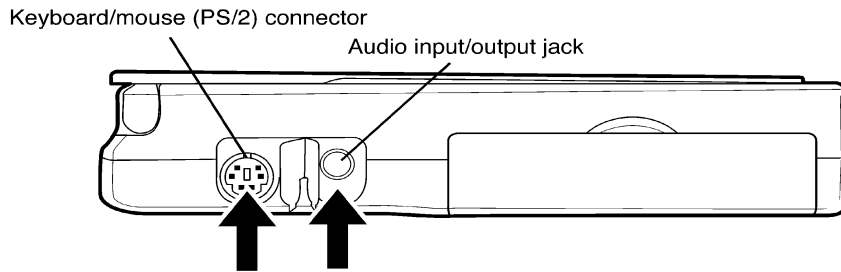
Serial devices include: mouse, serial printer, bar code reader, or measuring device.

Read the manual provided with the serial device and make the necessary operating environment settings so that the device will be recognized.

## ***Serial Port Setting***

The settings for the pen computer's serial port depend on the settings made by the Setup utility. When connecting a serial mouse to the serial port, set "COM Port" to "COM1" in the "Advanced" menu of the Setup utility.

## Connectors



*Figure 5-1*  
**Side View Connections**

- Keyboard, mouse, speaker, microphone, headset, etc.
  - Keyboard/mouse (PS/2) connector
  - Audio input/output jack
1. Turn off the power for both the pen computer and the peripheral device.
  2. Open the connector and jack cover on the right side of the pen terminal, and confirm the connector or jack that you want to use.
  3. Connect the cable for the peripheral device to the pen computer connector or jack.
  4. Turn on the power for both the pen computer and the peripheral device.

## **Keyboard/Mouse**

- " **NOTE:** *Do not connect a PS/2 device or disconnect a PS/2 device to the pen computer while the power is on. Doing so will cause erratic operation.*

## **Connecting Speakers/Microphone/Headset**

- " **NOTE:** *If external stereo speakers are connected to the pen computer, the audio will be output from the right channel only.*



# Section 6

## *Troubleshooting*

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Sometimes, a careful check will reveal that what you thought was a malfunction actually was not. Before requesting repairs, carefully consult this section and try to resolve the problem.

### ***The power lamp does not light even though the power is turned on.***

- Confirm that the power cord is connected properly.
- Connect another electric device to the power outlet in order to confirm that power is flowing from the outlet.

### ***The display is blank.***

- Push the Power button to confirm that the power management function is not currently enabled.
- Check the power lamp and confirm that power is being supplied to the pen computer.
- Check that there is power remaining in the battery pack(s) and confirm proper battery installation in the pen computer.
- Check the brightness of the display.
- If you try all of the above measures and the display is still blank, turn off the pen computer, wait 10 seconds, and then turn the power back on.

### ***The system will not start up.***

- Confirm that the floppy disk in the floppy disk drive, if any, contains the operating system.
- Confirm that the system files have not been deleted from the hard disk.

## ***The correct date and time are not displayed.***

- Connect the AC adapter/recharger for at least eight hours in order to charge the backup battery.
- Use the Setup utility to set the correct date and time.
- Use the Date and Time command of the operating system to correct the date and time.
- If the correct date and time are still not displayed, contact your dealer and have the backup battery on the system board replaced.

## ***Data cannot be written to or read from a floppy disk.***

- Confirm that the floppy disk drive is connected properly.
- Confirm that the drive specification is correct.
- Confirm that the file name specification is correct.
- If a file cannot be read, confirm that the floppy disk has not been formatted. The floppy disk may be damaged.
- If it is not possible to write to the floppy disk, it is possible that the floppy disk is in the write-protected state. Eject the floppy disk, and make sure that the write-protect switch on the floppy disk is in the “write enabled” position.
- If it is not possible to write to the floppy disk, it is possible that the floppy disk is full. Try using a different floppy disk.
- Confirm that, under the Main menu of the Setup utility, “Diskette A” is set to “Auto.”
- Confirm that, under the Security menu of the Setup utility, “Diskette access” is not set to “Supervisor.”
- Check whether the floppy disk in the floppy disk drive is a boot disk or not. The system cannot start up from a floppy disk that has an error or that does not have the operating system installed on it. Change floppy disks.
- Check the operation of the floppy disk drive. If the floppy disk still cannot be used even after trying the solutions described above, contact your dealer.

## ***Data cannot be written to or read from the hard disk.***

- Confirm that the hard disk has been formatted properly and that the areas have been setup properly with the FDISK command. If these cannot be performed properly, make sure that, under the Security menu of the Setup utility, “Fixed disk boot sector” is not set to “Write Protect.”
- Confirm that the drive specification is correct.
- Confirm that the file name specification is correct.
- Confirm that the hard disk has enough free space.

## ***The message “Not a system disk” or a disk error message appears.***

- Check whether the drive type is correct or not in the Setup utility.
- If the message is displayed when starting up from a hard disk drive, insert a boot floppy disk, start up the system, and then check the status of the hard disk drive.

## ***An expansion device or peripheral device does not function.***

- Confirm that the device is installed properly. Refer to Section 5, “Connecting Peripheral Equipment.”
- Confirm that the device driver required by the expansion device has been installed in the system.

## ***Output cannot be directed to the printer.***

- Confirm that the printer power is on.
- Confirm that the printer is connected properly to the pen terminal.
- Confirm that the printer is in the on-line state.
- Confirm that paper has been loaded in the printer properly.
- Confirm that under Integrated Peripherals in the Advanced menu of the Setup utility, "Parallel Port" is set to "Bi-directional."

## ***The device connected to the RS-232C connector does not work.***

- Confirm that the correct connecting cable is being used.
- Confirm that the application software supports the RS-232C interface functions.
- Confirm that in the Advanced menu of the Setup utility, “COM Port” is not set to “Disabled.”

## ***Infrared communications do not work.***

- Confirm that in the Advanced menu of the Setup utility, “IR Port” is not set to “Disabled.”
- Confirm that the mode that is set agrees with the other device. The mode is set through “IR Type” in the Advanced menu of the Setup utility.
- When attempting communications with another computer: IrDA1.0 or IrDA1.1, confirm that the infrared communications ports on the pen computer and the other device are directly facing each other, that they are separated by only 5 to 30cm (2 to 12”), and that there are no obstructions between the two ports.
- When attempting communications with a PDA (personal digital assistant) device, confirm that there are batteries in the PDA and that it is set to “personal computer linking” mode.

## ***PC Cards Do Not Function (in MS-DOS Mode)***

- Confirm that there are no conflicts involving COM3, which is used by cards, and COM1, which is used by other devices. This is because COM1 is already used by other pen computer devices. Use the Setup utility to change the COM port settings. When a PC card uses COM3, set the “COM Port” item to “Disabled.”