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# Using This Guide

This *Versa® 2205C Notebook User's Guide* contains information on using your notebook computer. Read the following chapters to find out more about the system.

- Chapter 1 introduces the computer, its features, and how to care for it.
- Chapter 2 explains how to use the NEC Versa 2205C hardware.
- Chapter 3 describes the software that comes with your NEC Versa 2205C.
- Chapter 4 discusses traveling with your NEC Versa 2205C.
- Chapter 5 gives you a checklist to follow if you have problems with the NEC Versa 2205C. Common problems and their solutions are also included.
- Chapter 6 provides a list of numbers for NEC customer support services.



## **WARNING**

Prolonged or improper use of a computer workstation may pose a risk of serious injury. To reduce your risk of injury, set up and use your computer in the manner described in Appendix A, Setting Up a Healthy Work Environment.

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- Appendix A, Setting Up a Healthy Work Environment, contains guidelines to help you use your computer productively and safely. This appendix also instructs you on how to set up and use your computer to reduce your risk of developing nerve, muscle, or tendon disorders.
  - Appendix B, Specifications and Environment, provides system specifications and environment recommendations.
  - Appendix C, Modem Commands, Registers, and Codes, lists commands, registers and return codes for network communication use via the internal modem (or an optional PC card modem).

## TEXT SETUP

To make this guide as easy to use as possible, text is set up in the following ways.

- Warnings, cautions, and notes have the following meanings:

**WARNING**

Warnings alert you to situations that could result in serious personal injury or loss of life.

**CAUTION**

Cautions indicate situations that can damage the system hardware or software.



Notes give particularly important information about whatever is being described.



**TIP:** Tips give helpful hints about getting the most out of your system.

- Names of keys are printed as they appear on the keyboard, for example, Ctrl, Alt, or Enter.
- Text that you have to type or keys that you must press are presented in bold type. For example, type **DIR** and press **Enter**.

## RELATED DOCUMENTS

In addition to this guide, a number of other documents ship with your Versa system, including:

- The *NEC Versa 2205C Notebook Quick Setup* shows you how to set up your system after you unpack it.
- The *Versa 2200 Series Notebook Quick Reference Guide* contains brief descriptions of function keys, LEDs, NEC help telephone numbers and troubleshooting tips.

Tuck this card inside the closed notebook when you take it with you. The card is designed as a quick, portable reference to frequently-used functions.

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# 1

## Getting to Know Your NEC Versa 2205C

### **WARNING**

Prolonged or improper use of a computer workstation may pose a risk of serious injury. To reduce your risk of injury, set up and use your computer in the manner described in Appendix A, Setting Up a Healthy Work Environment.

After completing the steps in the *Quick Setup* sheet that comes with your computer, your NEC Versa™ 2205C is ready to go! It's packed with features to make your work experience fun and productive. To get started, look at the following:

- Read Appendix A, Setting Up a Healthy Work Environment, for guidelines that help you use your computer productively and safely. Information includes how to set up and use your computer to reduce your risk of developing nerve, muscle, or tendon disorders.
- Take the online *System Tour* to get acquainted with the NEC Versa 2205C. (The *System Tour* is located in the Windows NEC Information group under the NEC Versa 2205C InfoCenter.)
- Wander through the online system *Basics*. (*Basics* is in the Windows 95 NEC Versa 2205C InfoCenter group.)
- Flip through this guide to familiarize yourself with the NEC Versa 2205C.

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## AROUND THE SYSTEM

The NEC Versa 2205C is light and compact with features all around it.

### Front

Take a look at the front of the NEC Versa 2205C.



*Front of system*

### **LCD Screen**

Your NEC Versa 2205C comes with a 9.5-inch color TFT (Thin Film Transistor) active-matrix display.

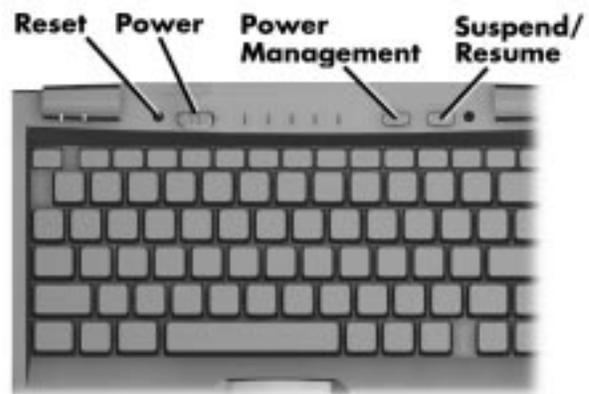
### **Brightness Control**

You can adjust the screen backlight brightness with the control slide switch located on the side of the screen.



### **Switches**

The NEC Versa 2205C has the following switches:



**Reset** — This recessed switch resets the system if the NEC Versa does not respond to keyboard input or VersaGlide movement. This is an alternative to powering down the system and restarting it. (Use a non-metallic pointed object to press the switch.)

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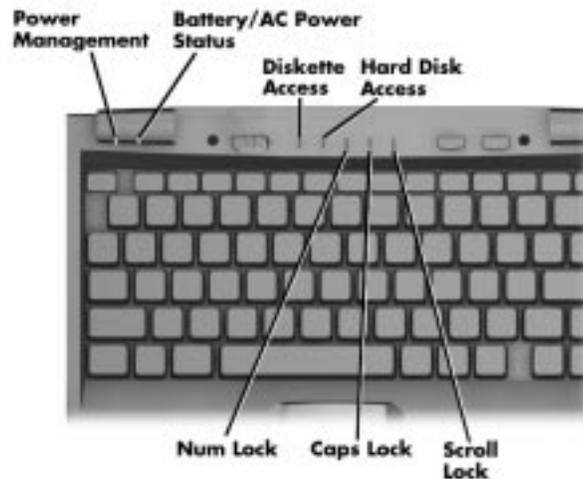
**Power** — Slide to turn on; slide right again to turn off.

**Power Management** — Press the switch down to turn Power Management on; press again to turn it off.

**Suspend/Resume** — Press the switch down for Suspend mode; press again to resume active mode.

## **LEDs**

The NEC Versa 2205C has several LED lights to let you know what's happening on your system.



**Power Management** — Green when On; no color when Off; blinking green when the system is in Suspend mode.

---

**Battery/AC Power Status** — There are several light indicators.

| BATTERY STATUS      | LED            |
|---------------------|----------------|
| AC Powered          | Green          |
| 50% to 100% charged | Green          |
| 25% to 49% charged  | Yellow         |
| 10% to 24% charged  | Red            |
| 0% to 9% charged    | Blinking Red   |
| Charging            | Blinking Green |
| Powered off         | No color       |

**Diskette** — Green when the NEC Versa 2205C is writing data to or retrieving from the diskette in the diskette drive.

**Hard Disk** — Green when the NEC Versa is writing data to or retrieving from the system's hard disk.

**Num Lock** — Green is On; no color is Off.

**Caps Lock** — Green is On; no color is Off.

**Scroll Lock** — Green is On; no color is Off.

### **Keyboard**

The NEC Versa 2205C keyboard is equipped with many features, including:

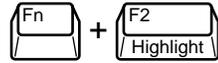
- Function keys
- Windows 95 keys
- Typewriter keys
- Cursor control keys
- Numeric keypad
- Control keys.

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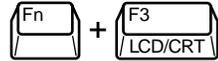
**Function keys** — The Fn (Function) key activates the functions printed in blue on keys having dual functions. Press and hold the **Fn** key and the desired function key simultaneously.

The applications that you run determine how these keys function. See the user's guides for the applications.

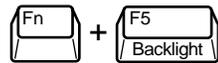
**Function key combinations** —



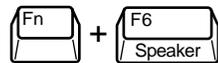
**Highlight On/Off**



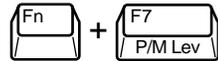
**LCD/CRT/Both**



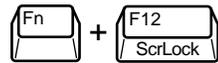
**Backlight On/Off**



**Speaker Volume On/Off**



**Power Management (P/M)  
Longest Battery Life/Maximum  
Performance/Personal Setup/  
Off**



**Scroll Lock On/Off**

**Windows 95 keys** — Within Windows 95, you can use the following two key combinations to facilitate your work.

- **Fn + x** – Quick access to shortcut menus
- **Fn + z** – Displays the Start menu

**Typewriter keys** — The typewriter keys (also called alphanumeric keys) are used almost exactly as on a typewriter. Those that behave differently do so when combined with control keys or function keys.

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**Cursor control keys** — Cursor control keys let you position the cursor on the screen wherever you want. On the screen, the cursor is a blinking underline, block, or pointer, depending on the application. It indicates where the next text type will be inserted.

**Numeric keypad** — Pressing the **Num Lock** on the keyboard activates the numeric keypad on your Versa 2205C when an external keyboard is not connected. The numeric keys are printed in blue. The keypad lets you type numbers and mathematical operands (+, -) as you would on a calculator. The keypad is ideal for entering long lists of numbers.

**Control keys** — Control keys include **Ctrl**, **Alt**, **Fn**, and **Shift**. They are used in conjunction with other keys to change their functions. To use these control keys, press and hold the **Ctrl** key while pressing another key. For example, “**press Ctrl c**” means to hold down the **Ctrl** key and type the letter **c**. How the key combination works depends on the applications you are running. Other control keys include **Num Lock**, **Scroll Lock**, **Ins**, **Del**, **Home**, **End**, **PgUp**, and **PgDn**.

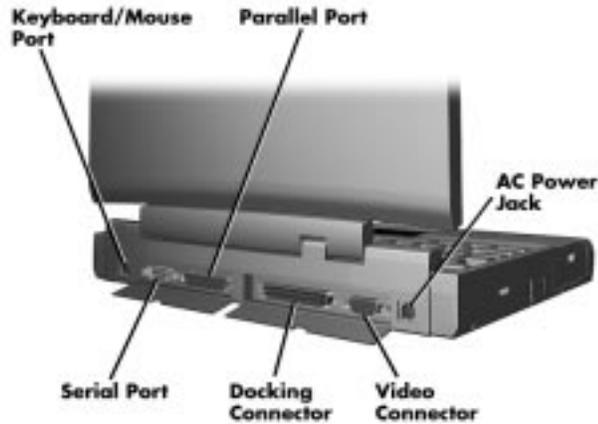
### ***NEC VersaGlide***

This is the mechanism by which you control the pointer on the screen with your finger. It serves the same function as the mouse or trackball on other systems. For more information on the VersaGlide, see “Learning to Use the Hardware.”

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## Rear

The rear of the system has ports for connecting your NEC Versa 2205C to other devices, like a printer or an external mouse, and power sources.



*Rear of system*

**Keyboard and Mouse Port** — Use the standard PS/2 port to connect an external PS/2 mouse or an external PS/2 keyboard. If you want to connect both, use the optional NEC Versa Y Adapter. (See the online *NEC Versa 2205C Options Catalog*.)

**Serial Port** — Use this to connect an external modem or a serial printer. You can tell that it's serial by looking at the cable. A serial cable has a 9-pin connector.

**Parallel Port** — Use to connect a parallel printer, tape drive, or CD-ROM reader. A parallel device has a 25-pin cable connector.

**Docking Connector** — Use this connector to attach the NEC Versa 2205C to a MiniDock 2000 or MediaDock 2000 to further expand your options.

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**Video Port** — Use this 15-pin connector port to attached an external CRT monitor to your NEC Versa. You can run both the LCD display and the external monitor simultaneously, or each alone.

**AC Power Jack** — Use the power jack to attach the NEC Versa 2205C to an AC power source such as the AC adapter or the optional car adapter.

## Left Side

The left side of your NEC Versa 2205C has two slots for PC cards, a port for an internal modem, and a hard disk drive compartment.



*Left side*

**PC Card Slots** — PCMCIA is a standard interface for peripheral devices like fax/modems, local area network (LAN) cards, storage cards, and pagers. A PC card is about the size and shape of a credit card and inserts into one of the two slots.

---

**Modem Port** — The NEC Versa 2205C has an internal modem. Attach the modem cable that came with the system to your system and a telephone line.

**Hard Disk Drive** — The NEC Versa 2205C hard disk drive is removable. You can exchange hard disks in the NEC Versa 2205C.

## Right Side

On the right side of the NEC Versa 2205C is a diskette drive and a compartment for the removable battery.



*Right side*

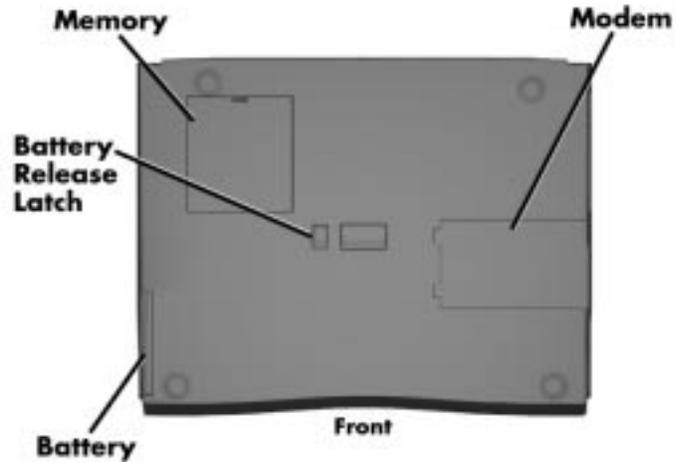
**Diskette Drive** — You can save your files to diskette and install software from diskette using the diskette drive, called drive A.

**Battery** — On the front side is the removable Lithium Ion (Li-Ion) battery.

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## Underside

Every inch of the NEC Versa 2205C has a purpose — even the underside! Turn your system upside down. You'll see three compartments. The small compartment is for expansion memory modules. Another compartment contains the Lithium Ion (Li-Ion) battery. The battery release latch releases the battery. There is also a compartment for the internal data/fax modem.



*Bottom of system*



There is a small compartment in the center of the underside that contains the CMOS battery. You should not attempt to remove this battery.

---

## SYSTEM CARE

The NEC Versa 2205C is a durable, dependable system built for extensive use and travel. Follow these guidelines to maintain the condition and performance of your computer.

### Precautions

Follow these precautions when using your NEC Versa 2205C and the AC adapter.

- Avoid dropping or bumping the computer or the AC adapter.
- Do not stack heavy objects on the computer.
- Avoid moving the NEC Versa 2205C during system operation, especially while the hard disk or diskette drive is being accessed.
- When using the AC adapter, make sure the power source falls within the system's compatible range of 100–240 volts AC. Never use the AC adapter if the voltage falls outside of this range. (Watch for this when traveling to foreign countries.)
- Turn computer power off before attaching or removing non-plug and play devices.
- Avoid using the computer or AC adapter for extended periods in direct sunlight.
- Do not use the system in humid or dusty environments.
- Avoid exposing the NEC Versa 2205C or AC adapter to extreme changes in temperature or humidity. If it is unavoidable, allow your NEC Versa to adjust to room temperature before using.
- When cleaning the system, use a soft, clean, dry cloth. Avoid wiping the display surface with abrasive material, including a rough cloth.

- 
- The VersaGlide has a sealed surface that resists normal dust and moisture and should require nothing more than an occasional cleaning. To clean the VersaGlide, simply wipe it off with a clean cloth. For stubborn grime, use a lightly moistened (with water) cloth.

### Storage Requirements

Store the computer and AC adapter in an environment that meets the following conditions:

- Maintain storage temperatures between  $-4^{\circ}\text{F}$  and  $104^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$  and  $40^{\circ}\text{C}$ ).
- Keep the storage area free from vibration and magnetic fields.
- Keep the system and its components away from organic solvents or corrosive gases.
- Avoid leaving the system and its components in direct sunlight or near heat sources.

### Routine Cleaning

Clean or dust your system as follows.

- LCD screen — Carefully wipe the LCD screen with a soft cloth or a screen wipe designed for that purpose. Special screen wipes are available through your local computer dealer.
- System plastic — If the NEC Versa 2205C plastic gets dirty, carefully wipe it with a slightly damp, almost dry cloth. Be extremely careful not to drip any moisture onto or into the NEC Versa 2205C. *Never* use harsh solutions or spray chemical cleaning products on the NEC Versa 2205C.



## CAUTION

If the environmental temperature of the NEC Versa suddenly drops (for example, when you move the system from a warm place to a cold place), vapor condenses inside the system. Turning on the system under this condition can cause damage to the internal components. Wait before turning the system on so that the internal temperature of the system can equalize with the cooler environment and any moisture can dry.

- VersaGlide — Wipe the pad surface with a clean cloth. For stubborn grime, use a lightly moistened (with water) cloth.



## CAUTION

Never use household cleaning solvents that contain caustic materials. The use of these cleaners may cause cracking or discoloration of the plastic surface.

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# 2 Learning to Use the Hardware

Like any computer, the NEC Versa 2205C is made up of the hardware — the physical unit and its components — and the software — the programs that run on the computer. This chapter discusses the hardware. The topics include:

- Powering the system
- Keyboard
- NEC VersaGlide
- Options and PC Card Expansion

## POWERING YOUR NEC VERSA

Since the NEC Versa 2205C is a truly portable computer, you can use it practically anywhere with any one of a number of power sources, including:

- the AC adapter connected to an electrical wall outlet (using AC power)
- the battery pack
- the optional DC adapter connected to a car cigarette lighter.

### AC Adapter

Use the AC adapter that came with your NEC Versa 2205C to run your computer with AC (alternating current) power, or to recharge the battery pack. Use the AC adapter whenever a wall outlet is nearby.

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Keep the adapter connected whenever possible. The AC adapter keeps the battery charged while you use the system and when the NEC Versa 2205C is powered off.

Here's how you connect the AC adapter:

1. Connect the AC adapter to your NEC Versa 2205C.



*Connecting the AC adapter*

2. Connect the end of the power cable to the AC adapter.
3. Connect the other end of the power cable to a 100- or 240-volt wall outlet.

## **Battery Pack**

The NEC Versa 2205C comes with a rechargeable Lithium Ion (Li-Ion) battery. With it, you can run your system without a wall outlet for up to four hours with Power Management or two hours without Power Management. It's easy to install and remove.

---

You can keep track of the battery's status through the LED on the front of the system or with the battery gauge in Windows 95. Both let you know how much battery power you have left.

When your battery power is getting low, you can replace the battery with a charged Li-Ion battery while your system is off or in Suspend mode or leave the original battery in the system and simply plug in your NEC Versa 2205C AC adapter into a wall outlet. The battery recharges over a period of two hours while in the NEC Versa 2205C and the system is powered off. You can recharge the battery in six to seven hours while the system is on.

Optionally, you can buy a battery charger to quickly charge your battery. See the online *NEC Versa 2205C Options Catalog*.

### **Removing the Battery Pack**

Use the following procedure to remove the battery pack.

1. Power off the NEC Versa 2200 and turn it over.
2. With the front of the system facing you, press on the battery compartment cover and slide it upward to remove it.
3. Locate the battery release latch on the bottom of the system. Slide the latch in the direction of the arrow. The battery pack pops out slightly.
4. Gently pull out the battery pack.

See the online *NEC Versa 2205C InfoCenter Basics* for a demonstration of this procedure.

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## **WARNING**

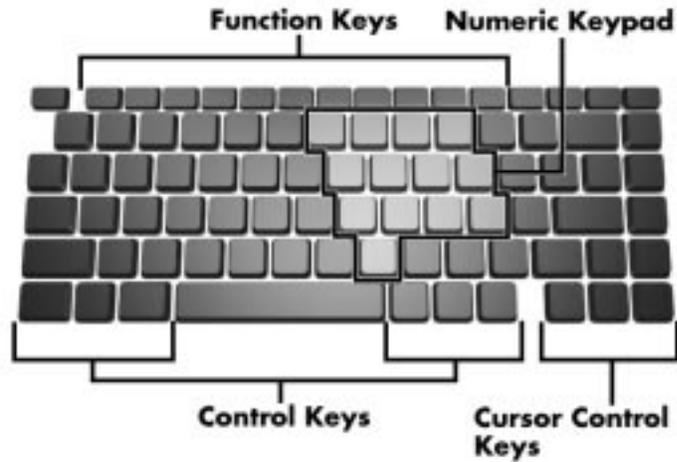
To prevent accidental battery ignition or explosion, adhere to the following:

- Keep the battery away from extreme heat.
- Keep metal objects away from the battery terminals to prevent causing a short circuit.
- Make sure the battery is properly installed in the battery bay.
- Read the precautions printed on the battery and in the online *Basics*.

## **KEYBOARD**

The NEC Versa 2205C keyboard is equipped with many features. They include the following.

- Function keys
- Cursor control keys
- Typewriter keys
- Numeric keypad
- Control keys



*Keyboard*

**Function keys** — There are 12 function keys, **F1** through **F12**. The **Fn** key activates key functions printed in blue on keys having dual functions.

**Cursor Control keys** — Cursor control keys let you position the cursor on the screen where you want. On the screen, the cursor is a blinking underline or block, depending on the application. It indicates where the next text typed is inserted.

**Typewriter keys** — The typewriter keys (also called alphanumeric keys) are used to enter text and characters. Those keys that have blue printing on them behave differently when combined with control keys or Fn keys.

---

**Numeric Keypad** — Pressing **Num Lock** on the keyboard activates the numeric keypad (when an external keyboard is *not* connected). The keypad lets you type numbers and mathematical operands (+, −) as you would on a calculator. The keypad is ideal for entering long lists of numbers.

When you press **Num Lock** again, the keys revert to their normal functions as typewriter keys.

**Control keys** — **Ctrl**, **Alt**, **Fn**, **Ins**, and **Shift** are controls that are used in conjunction with other keys to change their functions. To use these control keys, press and hold the **Ctrl** key while pressing another key. For example, “press **Ctrl c**” means to hold down the **Ctrl** key and type the letter **c**. How the key combination works depends on the applications you are running.

## THE NEC VERSAGLIDE

The NEC VersaGlide is an easy way to control the screen pointer (cursor) with your finger. Simply move your finger across the NEC VersaGlide touchpad and the cursor follows. You select an object on the screen in either of two ways:

- Double click the left button (this is the default primary button)
- Double tap your finger on the VersaGlide touchpad.

Try both ways and decide which you prefer. You can also reverse the primary (left) and secondary (right) buttons.

For details on using the NEC VersaGlide, see the online *NEC Versa 2205C InfoCenter Basics*.

---

## Personalized Modes

The NEC VersaGlide has four personalized modes that make finding the cursor on your screen quick and easy. Click on the key sequence you've defined in NEC Mouse Shortcuts, and the cursor jumps to the spot on the screen you have preselected. See the Windows 95 Settings, Control Panel, Mouse.

## Pointer Size, Speed

You can change the size, color, and speed of the pointer controlled by the NEC VersaGlide. See Settings, Control Panel, Mouse.

## Ergonomics

Follow these basic ergonomic tips while working:

- Use a light touch on the VersaGlide surface.
- Set up your NEC Versa 2205C with your keyboard and VersaGlide at a comfortable height. Keep your forearms parallel to the floor. Your wrists should be relaxed and straight.
- While using the keyboard and VersaGlide, keep your shoulders and arms as relaxed as possible.
- Take regular breaks from the computer to rest your eyes, and perform stretching exercises to relax your fingers, hand, wrists, forearms, and shoulders.

See Appendix A, "Setting Up a Healthy Work Environment," for more information.

## OPTIONS AND PC CARD EXPANSION

You can add a number of options and connect several external devices and PC cards to your NEC Versa 2205C. You can get details on how to obtain these options from the online *NEC Versa 2205C Options Catalog*.

---

## Hard Disk

You can increase the system's storage capacity by replacing the standard hard disk, or you can have two hard drives for alternate usage (for example, one for office use and one for home use). Here is how to replace the hard disk:

1. Check that the NEC Versa 2205C power is off.
2. Open the hard disk compartment cover, swing the drive handle down, and pull the drive out of the compartment.
3. Swing the handle on the new drive down. Install the drive, sliding it into the compartment. Press firmly to make sure the drive is fully inserted. Swing the drive handle up.



4. Close the disk compartment cover. Turn on the NEC Versa 2205C.
5. Press F1 to run Auto Setup to check the new configuration. Auto Setup recognizes the new drive if it's a different size from the first drive. Refer to "Auto Setup Utility" in Chapter 3 of this guide or to the online *Advanced Topics* for details on using Auto Setup.

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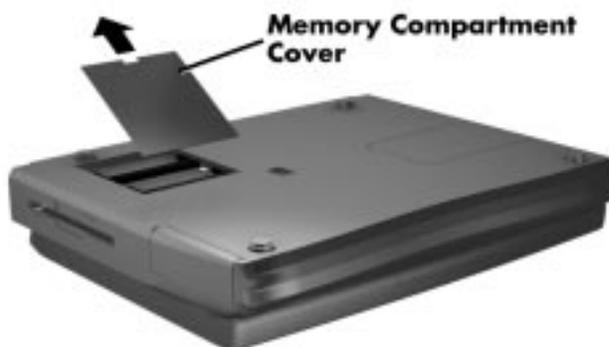
## Memory Expansion

Your NEC Versa 2205C comes standard with 8 megabytes (MB) of random access memory (RAM). You can increase system memory to a maximum of 40 MB by installing any one or combination of two of the following memory modules in the system.

- 4-MB memory card
- 8-MB memory card
- 16-MB memory card

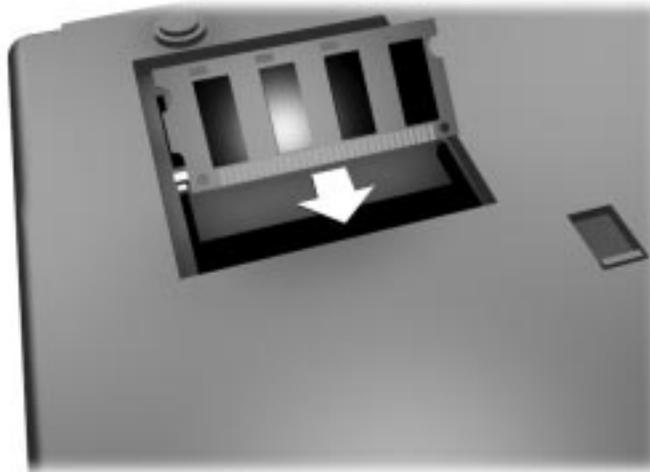
Use the following steps to install a memory card.

1. Make sure the system power is off.
2. Turn the NEC Versa 2205C upside down.
3. Remove the memory compartment cover from the system by releasing the small latch and lifting the cover off the system



*Removing cover*

- 
4. Install the memory card as follows.
    - Align the memory card connector with the connectors in the system. (The card fits in either slot.)
    - Insert the card connector by sliding it into the system connector. Press the card to make sure it is securely seated.



*Inserting an optional memory card*

5. Replace the memory compartment cover.
6. Run Auto Setup to check the new configuration. Auto Setup should show a blinking arrow next to the extended memory field. The new value should reflect the increase in memory. (Refer to “Using Auto Setup” in the online *Advanced Topics*.) If it does not verify, make sure the memory card is properly seated in the slot.

---

# 2

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## External Monitor

You can add a standard external monitor to your NEC Versa 2205C. You need a display signal cable (usually provided with the monitor). One end of the cable must have a 15-pin connector for the system. (See the back of the NEC Versa 2205C, behind the right-rear cover, for the monitor connector.)

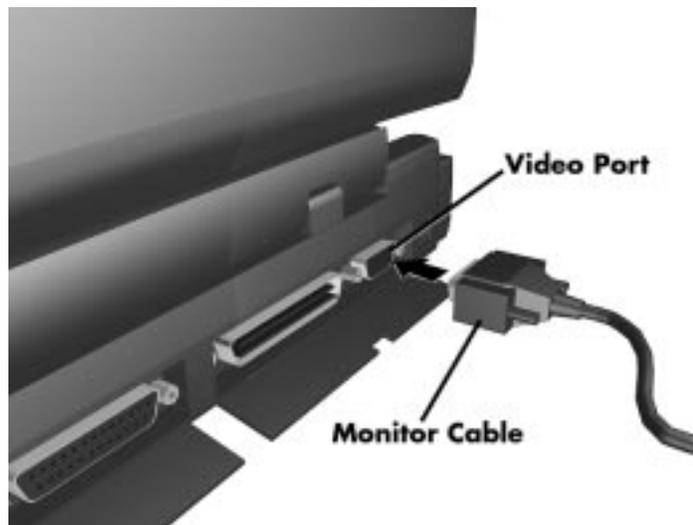
Follow these steps to connect an external monitor to your NEC Versa 2205C.

1. Check that the NEC Versa 2205C is in Suspend mode or powered off and the monitor power switch is turned off.



The NEC Versa must be in Suspend mode or powered off while the monitor is being connected.

2. Open the right-rear cover of the system.
3. Attach the 15-pin cable connector to the video port on the system. (The video port is the second from the right.) Secure the cable connection with the screws provided.



*Connecting a monitor*

4. Connect the monitor power cable and plug it into a properly grounded wall outlet.
5. Follow any setup instructions in the monitor manual.
6. Turn on power to the monitor.
7. Press the Suspend button to resume Active mode or power on the NEC Versa 2205C.

Toggle the **Fn + F3** function key combination to select both the LCD and CRT monitor, CRT monitor only, or LCD only.

## **Printer**

You can attach a printer with either a parallel or a serial connector. A parallel printer connector has 25 pins; a serial connector has 9 pins.

---

## ***Parallel Devices***

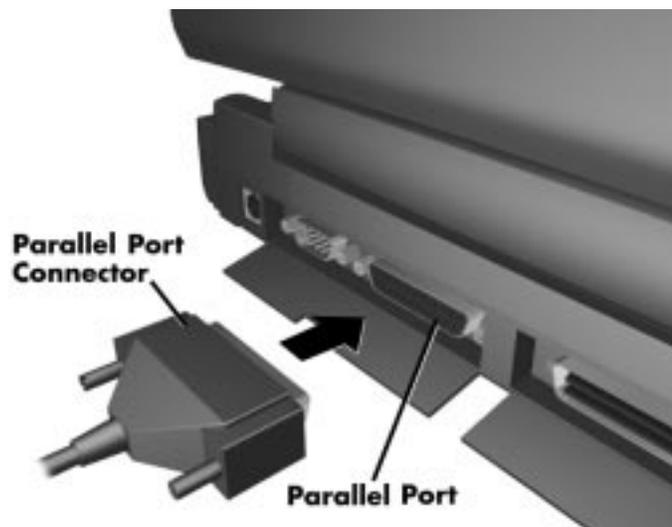
To install a parallel device (such as a printer, CD-ROM reader, or tape drive), you need a cable with a male 25-pin connector for the system and, for most parallel printers, a Centronics® compatible 36-pin connector.



When you connect a printer, be sure you install the appropriate device driver through the Windows 95 Control Panel. See the online *Using Windows 95* for instructions on installing the driver.

To connect a parallel device to your NEC Versa 2205C, do the following.

1. Check that both the NEC Versa 2205C and device power are off.
2. Open the left-rear cover of the system and locate the parallel port. (The parallel port is the third from the left.)
3. Align and connect the 25-pin cable connector to the parallel port on the system. Secure the cable with the screws provided.



*Connecting a parallel device*

4. Align and connect the other end of the cable to the parallel port on the device. Lock the connector clips.
5. Connect the power cable to the printer and a properly grounded wall outlet.
6. Turn on power to the system and then to the device.



Check that the device is online before you try to use it. See the instructions that came with your device for further information.

---

## **Serial Devices**

To install a serial device such as a printer or an external modem, you need a cable with a female 9-pin connector.



When you connect a printer, be sure you install the appropriate printer driver through the Windows Control Panel. See the online *Using Windows 95* for instructions on using the Control Panel.

Follow these steps to connect a serial device to your NEC Versa 2205C.

1. Check that both the NEC Versa 2205C and the device power are off.
2. Open the left-rear port cover and locate the serial port (second from left).
3. Align and connect the 9-pin connector with the serial port on the system. Secure the connection with the screws provided.
4. Align and connect the other end of the cable to the appropriate port on the device. Secure the connections with the screws provided.
5. Connect the power cable to the device and a properly grounded wall outlet.
6. Turn on power to the system and then to the device.



Make sure your device is online before trying to use it. See the device guide for instructions.

---

## External Keyboard

You can add a full-size PS/2-style keyboard to your NEC Versa 2205C using the Plug and Play feature. You cannot use the system keyboard while an external keyboard is connected. If you press the **Fn + NumLock** key combination to enable the numeric keypad while the external keypad is installed, the keypad works on the external keyboard only.

If you want to attach both an external keyboard and a PS/2-style external mouse at the same time, use the optional NEC Y-adapter. See the online *NEC Versa 2205C Options Catalog*.

Follow these steps to connect an external keyboard to your system.

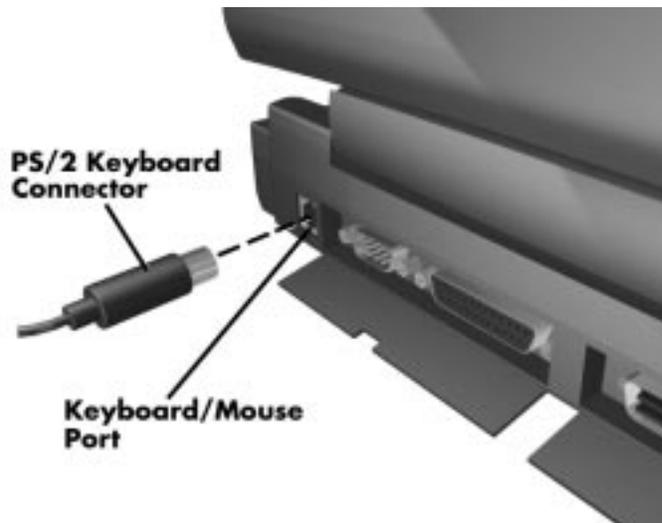
1. Press the **Suspend** button on the NEC Versa 2205C. Check that the system is in Suspend mode or system is powered off.



### CAUTION

Make sure the NEC Versa 2205C is in Suspend mode whenever you add or remove a keyboard. Doing so with the power on in Active mode may damage either the keyboard controller chip or the keyboard.

2. Connect the keyboard cable connector to the keyboard port on the system. (The keyboard/mouse port is the first one on the left rear of the system.)



*Connecting an external keyboard*

3. Press the **Suspend** button again to resume Active mode.

The system will immediately recognize the keyboard.



For instructions on connecting an external keyboard to either the NEC Versa MediaDock 2000 or MiniDock 2000, see the user's guide that came with your specific docking device.

## Mouse

You can add an external mouse to your NEC Versa 2205C to use in place of the NEC VersaGlide for moving the pointer. Use the following procedure to connect a PS/2-style mouse to the system. The Plug and Play feature allows you to do this with the system powered on, but in Suspend mode.

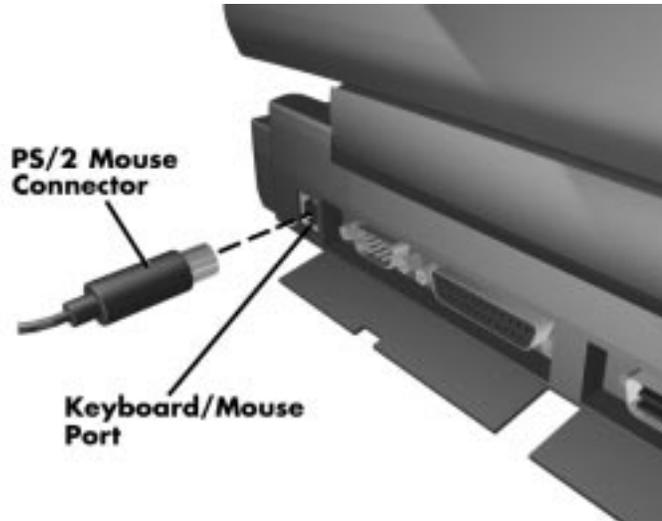
1. Check that the NEC Versa 2205C is powered off.

---

 **CAUTION**

Make sure the NEC Versa 2205C is powered off whenever you add or remove a mouse. Doing so with the power on may damage either the system or the mouse.

2. Connect the mouse cable connector to the keyboard/mouse port on the system. (The keyboard/mouse port is the first one on the left.)



*Connecting an external mouse*

3. Power on the NEC Versa 2205C again.



For instructions on connecting an external mouse to either the NEC Versa MediaDock 2000 or MiniDock 2000, see the user's guide that came with your specific docking device.

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## Internal Modem

The NEC Versa 2205C has an internal modem that you can use to send and receive faxes, cruise the Internet, and download information. A modem converts data so it can be transmitted over phone lines and then converts it back again so you can read it on your computer.



You also can use a PC card modem. This will necessitate disabling the internal modem. See the online *Basics* for how to disable the internal modem. See the online *NEC Versa 2205C Options Catalog* for information on how to purchase the modem PC card option.

Your NEC Versa 2205C comes with several online service gateways — all the basic software you need to communicate with the outside world.

Use the following procedure to connect a phone line to the NEC Versa 2205C.

1. Unplug the telephone cable from the telephone.
2. With the internal modem, plug the telephone cable into the modem port on the NEC Versa 2205C.slot.



*Connecting to the internal modem*

You are now ready to use your communication software to send faxes, run an online service, or download the latest NEC Bulletin Board Services information.

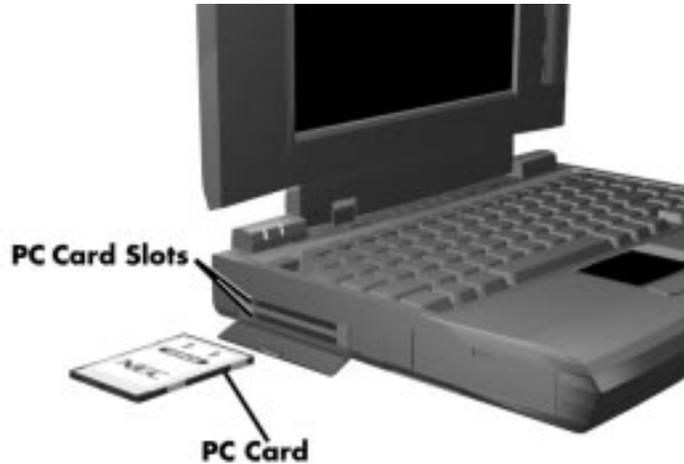
## **PCMCIA**

You can easily install and interchange peripheral devices, such as modems, LAN cards, and storage cards in your NEC Versa 2205C. The NEC Versa 2205C series notebook computers have software that automatically allocates system resources when you install or remove a PC card using PCMCIA technology. Refer to the user's guide that came with your PC card for any special information.

To insert a PC card, open the slot cover and follow these steps.

1. Align the card so the 68-pin connector points toward the slot.

- 
2. Slide the card into either slot. A low, then high tone lets you know that it's fully inserted and recognized. (If you turned off the sound on the Versa, the tones do not sound.) Other two-tone sequences such as high, then low tones indicate the card is inserted, but the type is unknown.



Inserting a PC card

3. Click on Settings, Control Panel, and the PC Card icon to see which slot contains the PC card and which is empty.
4. To remove the card, double click on the PC card icon on the task bar. Select the PC card to be removed, and click on **Stop**. When you get a prompt, click **OK**, then press the button on the side of the slot and remove the card.

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## NEC Versa MediaDock 2000

The NEC Versa 2205C expansion options give you one touch connection to external peripherals or a full-blown multimedia station. The MediaDock 2000 provides CD-ROM capability and a stereo sound system. See the *NEC Versa MediaDock 2000 User's Guide* for instructions on connecting the NEC Versa 2205C to it.



*NEC Versa 2205C docked with a MediaDock 2000*

## NEC Versa MiniDock 2000

The Versa MiniDock 2000 option provides you with the convenience of a dock at your desk without taking up a lot of space. With your NEC Versa 2205C securely attached to the MiniDock, you can have one connection with all your peripheral resources — printer, local area network, monitor, mouse, and keyboard — instead of five separate connections. The NEC MiniDock 2000 also provides two additional PCMCIA slots.



*NEC Versa 2205C docked with a MiniDock 2000*

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# 3 About the Software

This chapter introduces you to the software that comes with the NEC Versa 2205C, including:

- Windows® 95
- Online Help
- NEC Utilities

## WINDOWS INTRODUCTION

Your NEC Versa 2205C gives you the Windows 95 operating system to use on your system. This Microsoft operating system provides a means of running applications, navigating through your file structure, and using your notebook computer. Windows 95 uses a graphical interface to make the operating systems easy to use.

Most popular programs today are designed specifically for Windows, using menus and dialog boxes that operate in much the same way. Learning one program, therefore, helps you learn other Windows programs.

## Windows 95

Windows 95 gives you the newest features offered by Microsoft, including a Desktop with room to maneuver, a Taskbar for quick navigation between open windows, plug and play features, online networking functions, and more.

Windows 95 provides the following icons on your desktop:

- My Computer — provides access to drives, printers, the Control Panel, and network features.

- 
- **Inbox** — lets you access the Microsoft Fax and Mail software as well as Microsoft Network Services.
  - **Recycle Bin** — gives you a trash container in which to put unwanted files.
  - **The Internet** — lets you set up a connection via a modem or network PC card to the Internet.
  - **Microsoft Network** — lets you access the Microsoft Network online service via the internal modem.
  - **Network Neighborhood** — shows you the network, integrated LANs, and WANs if your system is connected to a network.
  - **NEC Versa 2205C InfoCenter** — provides several levels of information about your NEC Versa 2205C. (This is further described later in this section.)
  - **My Briefcase** — gives you quick access to files you frequently use.
  - **Start** — lets you access a pop-up menu to start programs and applications, open documents, and shut down your system.

See the online *Using Windows 95* for instructions on using Windows 95.

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## GUIDE TO ONLINE HELP

The NEC Versa 2205C has plenty of information for you online.

### NEC Versa 2205C InfoCenter

The NEC Versa 2205C InfoCenter contains several specific areas of information to help you.

#### System Tour

The NEC Versa 2205C *System Tour* takes you completely around the computer, pointing out components, switches, software, and utilities. It's intended to get you comfortable with your new notebook computer. The Tour takes about five minutes.

#### Basics

*Basics* describes the NEC Versa 2205C main features, how to travel with the system, use power management, and care for the system. It includes a glossary.

#### Advanced Topics

*Advanced Topics* covers more specific areas such as adding options, changing setup options, and solving problems. It also includes a glossary.

#### Questions and Answers

*Questions and Answers* provides frequently asked questions and their answers about notebook computers to help you solve common problems yourself.

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## Additional Topics

### NEC Versa 2205C Series Options Catalog

The NEC Versa 2205C Series *Options Catalog* lists options such as memory cards, hard drives, carrying cases, and PCMCIA cards that you can purchase for the NEC Versa 2205C.

### Customer Service Guide

The *NEC Customer Service Guide* discusses the various levels of support NEC offers you, our customer. We provide lots of information to help you become self-sufficient with your NEC Versa 2205C, but if you need help, we're there for you.

### UltraCare Guide

The *NEC UltraCare Guide* describes NEC's one-year warranty program to help you protect your investment in an NEC Versa 2205C Series computer.

### Using Windows 95

This online "book" provides a series of lessons on using Microsoft Windows 95 on the NEC Versa 2205C.

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## GUIDE TO NEC UTILITIES

NEC provides several programs and routines designed to make your NEC Versa 2205C run more efficiently. These programs are known as utilities.

### Distribution Diskette Creator



This utility lets you create distribution diskettes for the system contents. Use the distribution diskettes to make a backup copy of the programs that came on your NEC Versa 2205C. Save the diskettes in case you need to reload the software. Windows 95 operating system backup diskettes are available through NEC Backup Disk Fulfillment at 1-800-842-6446.

### PowerCenter



This utility lets you select the specific Power Management you want.

### Preference Tools Utility



This utility displays your preferred system settings such as screen backlight on/off and other settings.

### NEC Battery Gauge



You can use this utility to periodically check on your battery status. The gauge shows you the percentage of power left in your Li-Ion battery.

---

## PHDisk

This utility creates a file on the hard disk that is large enough to contain all the software in memory. Its default size is approximately 16-MB. You will need to update this utility only if you upgrade the amount of memory to more than 16-MB in your NEC Versa 2200. This utility must be run in DOS. (It will not run on a compressed drive.)

## Auto Setup Utility

Auto Setup automatically configures your NEC Versa 2205C each time you start it up. This utility also lets you change your system start-up settings.

### *Using Auto Setup*

Use Auto Setup as follows:

1. Reboot your system. When the screen displays the large blinking block at boot-up, press **F1**.
2. When the Auto Setup Summary screen is displayed, enter the highlighted letter in the menu bar to that represents the category you want.

For example, type **D** to open the Disk Drive Settings window.

3. Use the up and down arrows to move between selections displayed on the screen. Press **Alt** + the arrow keys to display setting options.
4. Follow the instructions at the bottom of the screen to make selections, change values, and exit.



Be sure to keep track of any password you enter. If you set a system password, a key icon appears at bootup. You must enter the password to access the system. To change the password, enter the password followed by a forward slash (/) and a new password. To remove the password, enter the password followed by a forward slash (/).

Refer to the online *Advanced Topics* for details on Auto Setup.

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# 4 Traveling with Your NEC Versa 2205C

The NEC Versa 2205C makes a natural traveling companion. Using a battery, you can use the computer anywhere you go. Here is some information you might find helpful when taking the NEC Versa on the road.

- Carry an extra charged battery pack for additional battery power.
- Check that you have everything you need before you leave on a trip. Be sure you have all the necessary cables and accessories. (See the checklist at the end of this chapter.)
- If you run your system with battery power, maximize battery life by using power-saving features whenever possible.
- Take the AC adapter in case you have an electrical outlet handy. This saves battery power for when you really need it.
- Carry along any application or data files on diskette that you might need.



**TIP:** Speed the trip through airport security by carrying a charged system. Inspectors want to see the screen display a message. The boot message is usually sufficient.

If your system is fully charged, the inspection only takes a minute or so. Otherwise, be prepared to attach the AC adapter and power cable. If you don't have these, the inspection might include a disassembly of the system.

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## POWER CONNECTIONS

With the right accessories, you can run your NEC Versa 2205C almost anywhere! Your system self-adjusts to various power sources. The United States, Canada, and most of Central and South America use 110-volt alternating current (AC). Most other countries of the world use 220-volt AC. The NEC Versa 2205C adapts to voltages ranging from 100 to 240 volts.

There are a few countries with areas that use direct current (DC) as their main power source. You need a DC-to-AC converter in particular areas of Argentina, Brazil, India, Madeira, and South Africa.

To use your system overseas, you need an adapter plug and transformer. There are five different plugs available worldwide. You can buy these at an electronics supply store.



**TIP:** When using a modem outside the U.S. and Canada, you might need an international telephone adapter. You can buy this at an electronics supply store.

For more information on using a modem, see Chapter 2, "Learning to Use the Hardware" and Appendix C, "Modem Commands, Registers, and Codes" in this guide.

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## CHECKLISTS

The following checklists can help you prepare for your trip with your NEC Versa 2205C. Look them over and use what fits your situation.

### What to Take

The following are what you should take with you when you travel with your NEC Versa 2205C.

- At least two fully charged batteries
- Single-outlet surge protector
- Long telephone extension cord with RJ-11 plugs
- Appropriate AC plug adapter
- Copy of proof of purchase for computer and other equipment for customs check
- Customer support phone numbers for your software
- *NEC Versa 2200 Series Quick Reference*
- AC extension cord.

### Things to Do

Here is what you should do before you leave home:

- Back up your NEC Versa 2205C's hard disk.
- Put your system into Suspend or Standby mode so you can quickly boot up at the airport security check.
- Fully charge all your batteries.
- Tape your business card to your NEC Versa 2205C, AC adapter, and batteries.

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# 5 Solving Problems

Once in a while you may encounter a problem with your NEC Versa 2205C. The NEC InfoCenter has *Questions and Answers* that might be helpful to you.

If the screen is blank, the instructions don't help, or no error message appears, use the information here to determine and fix the problem. You still may be able to solve the problem yourself!

## PROBLEM CHECKLIST

First check the items in the following list. If these items don't help, see the table that follows the list.

- Power is on to the computer.
- The electrical outlet to which your AC adapter is connected is working. Test the outlet by plugging in a lamp or other electrical device.
- All cables are tightly connected.
- When you are using the internal modem, check that it is properly inserted.
- The display setting is configured correctly.
- The display's brightness control is adjusted properly.
- If using battery power, check that the battery pack is properly inserted and fully charged.

---

## Troubleshooting

| PROBLEM   | WHAT TO DO   |
|---|--|
| The system does not power on                      | <p>If you are operating the system with battery power, check that the battery pack is correctly inserted. Attach the AC adapter to recharge the battery.</p> <p>If you have the AC adapter attached, check that the electrical outlet you are using works.</p>   |
| LCD screen is dark and blank                      | <p>Power-saving mode may have shut off the backlight. Press any key, <b>Fn+F5</b>, or use the <b>suspend</b> button. The built-in LCD may not be selected. Press <b>Fn+F3</b> once or twice.</p> <p>Brightness control may need adjustment. Adjust the control.</p> <p>The system entered Suspend mode due to low battery power. Press the <b>suspend</b> button to resume operation. If the system does not resume, plug in the AC adapter or replace the battery pack, then press the <b>suspend</b> button again.</p> |
| Battery power does not last long                  | Use power-saving modes.  |
| Information on the LCD screen is difficult to see | Adjust the brightness control.   |
| An optional component does not work               | Make sure the component is securely installed or connected. Verify that the system parameter for the I/O port configuration is set correctly in Auto Setup.  |

---

## Troubleshooting

| PROBLEM                                   | WHAT TO DO   |
|---|--|
| The power management button does not work | <p>Check that Power management isn't set to off on the Preference toolbar.</p> <p>Power management may be disabled in Auto Setup.</p> <p>A disk drive might be busy. Wait until the disk drive stops and try again.</p> <p>The docking station might be connected to the NEC Versa 2205C. Some power management functions do not work when the docking station is connected.</p> |

## START-UP PROBLEMS

The system displays an invalid configuration error message at power on when there are the following conditions:

- current configuration information doesn't match configuration information stored in Auto Setup, such as when an internal option is added or changed.
- the system loses configuration information.

If either of these conditions is true, the system displays an “invalid configuration information” message.

To continue start-up procedures, press **F1** and run Auto Setup to set current system parameters.

---

If an error message appears before the operating system starts, look up the error message in the following table. Follow the instructions. If you see other error messages, the hardware might need repair.



When the NEC Versa 2205C detects an error related to display devices, it cannot display on either the LCD or a CRT. The system warns you by beeping.

## POST Error Messages

The NEC Versa 2205C has a built-in checking program that automatically tests its components when you turn the system power on. This diagnostic test is called the Power-On Self-Test (POST). If the system finds a problem during the POST, the system displays an error message. If this happens, follow the instructions in the POST error message table.

### POST Error Messages

| MESSAGE  | WHAT TO DO   |
|--|--|
| Diskette drive A failure   | Drive A does not work or the diskette is not properly inserted. Drive A is the diskette drive.<br><br>Press <b>F1</b> to start Auto Setup to check the diskette drive parameters.<br><br>If there's still a problem, drive A might need repair.  |
| Diskette read failure – press <b>F1</b> to run Auto Setup. Press any other key to retry boot | Remove the diskette from drive A and press <b>F1</b> to enter Auto Setup to confirm that the diskette drive is configured properly, or press any key to start the system from the hard disk.<br><br>Or, insert a bootable disk in drive A and press any key to restart the system from diskette. |

---

## POST Error Messages

| MESSAGE   | WHAT TO DO  |
|---|---|
| Non-system disk or disk error; replace and press any key when ready | Remove the diskette from drive A and press any key to start the system from the hard disk.<br><br>Or, insert a bootable diskette in drive A and press any key.  |
| No boot device available – press <b>F1</b> to run Auto Setup        | Press <b>F1</b> to start Auto Setup. Change the hard disk type to the correct setting. Exit and save Auto Setup.<br><br>Or, turn off the system and check to see that the hard disk is properly installed.  |
| Invalid configuration information – run Setup program               | One or more system configuration parameters are not properly set. Press <b>F1</b> to start Auto Setup, set them correctly, exit, and save to update the parameters.   |
| Real time clock failure   | Set time and date using Auto Setup. Exit and save to update the parameters.   |
| Time-of-day not set – run Setup program                             | Set the time and date using Auto Setup. Exit and save to update the parameters.   |
| Fixed disk configuration error                                      | Start Auto Setup. Exit and save to update the parameters. Turn the system off and check to see if the hard disk is installed properly.<br><br>Insert a bootable diskette in the diskette drive and press <b>Ctrl+Alt+Del</b> to start the system from diskette. The hard disk might need repair.                          |
| Fixed disk failure  | Press <b>F1</b> to start Auto Setup. Exit and save to update the parameters.<br><br>Turn the system off and check to see if the hard disk is inserted properly.<br><br>Insert a bootable diskette in the diskette drive and press <b>Ctrl+Alt+Del</b> to start the system from diskette. The hard disk might need repair. |

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## POST Error Messages

| MESSAGE                       | WHAT TO DO  |
|-------------------------------|---|
| Fixed disk controller failure | <p>Press <b>F1</b> to start Auto Setup. Exit and save to update the parameters.</p> <p>Turn off the system and check to see if the hard disk is installed properly.</p> <p>The hard disk controller may not work and might need repair.</p> |
| Keyboard clock line failure   | <p>Unplug the external keyboard, if attached. Have the external keyboard repaired.</p>  |
| Keyboard data line failure    | <p>Unplug the external keyboard, if attached. Have the external keyboard repaired.</p>  |
| Keyboard controller failure   | <p>Unplug the external keyboard, if attached, and reboot the system. If it still fails, have the external keyboard repaired.</p> <p><b>NOTE:</b> <i>Repeated keystrokes during boot may produce an error message.</i></p>                   |
| Keyboard stuck key failure    | <p>A key is jammed. Remove any obstruction you find.</p> <p>You may have repeatedly pressed the <b>F1</b> key when trying to enter Auto Setup.</p> <p>If the error message remains, you may have to have the keyboard repaired.</p>         |

## IF YOU NEED ASSISTANCE

If you have a problem with your computer, first review the checklist and troubleshooting table in the previous section.

If you still have a problem, call the NEC Technical Support Center (TSC), toll free, at 1-800-632-4525 Direct technical assistance is available 24 hours a day, seven days a week.

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# 6 Getting Help

NEC is ready and willing to help you with our products. Here's how to reach us.

**NEC Versa Diskette Fulfillment Center (800) 842-6446**

To purchase backup diskettes and manuals.

**NEC Customer Service and Support (800) 632-4525**

**Fax (508) 635-4666**

Spare parts ordering, warranty claims, repair services, technical support, and service authorizations.

**NEC FastFacts (800) 366-0476 (U.S and Canada)**

**(708) 238-7800 (International)**

Automated fax service that offers product brochures, installation procedures, quick reference guides, promotional forms, troubleshooting information, and more.

**NEC Electronic Bulletin Board (508) 635-4706**

Remote database system containing files that are dedicated to enhancing the functions of NEC products. It also gives the general public access to drivers for NEC products to be used with various software applications.

**CompuServe Password: "GO NECTECH"**

**Internet Address: [tech-support@NECTECH.com](mailto:tech-support@NECTECH.com)**

**America Online: nectech**

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**Worldwide Web Address: [www.nec.com](http://www.nec.com)**

NEC is a member of TSANet (Technical Support Alliance Network).

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# A Setting Up a Healthy Work Environment

## WARNING

Prolonged or improper use of a computer workstation may pose a risk of serious injury. To reduce your risk of injury, set up and use your computer in the manner described in this appendix.

Contact a doctor if you experience pain, tenderness, swelling, burning, cramping, stiffness, throbbing, weakness, soreness, tingling and/or numbness in the hands, wrists, arms, shoulders, neck, back, and/or legs.

### MAKING YOUR COMPUTER WORK FOR YOU

Computers are everywhere. More and more people sit at computers for longer periods of time. This appendix explains how to set up your computer to fit your physical needs. This information is based on ergonomics — the science of making the workplace fit the needs of the worker.

Some nerve, tendon, and muscle disorders (*musculoskeletal disorders*) may be associated with repetitive activities, improper work environments, and incorrect work habits. Examples of musculoskeletal disorders that may be associated with certain forms of repetitive activities include: carpal tunnel syndrome, tendinitis, tenosynovitis, de Quervain's tenosynovitis, and trigger finger, as well as other nerve, tendon, and muscle disorders.

---

Although some studies have shown an association between increasing hours of keyboard use and the development of some musculoskeletal disorders, it is still unclear whether working at a computer causes such disorders. Some doctors believe that using the keyboard and mouse may aggravate existing musculoskeletal disorders.

Some people are more susceptible to developing these disorders due to pre-existing conditions or psychosocial factors (see “Pre-existing Conditions and Psychosocial Factors” later in the appendix).

To reduce your risk of developing these disorders, follow the instructions in this appendix. If you experience discomfort while working at your computer or afterwards, even at night, contact a doctor as soon as possible. Signs of discomfort might include pain, tenderness, swelling, burning, cramping, stiffness, throbbing, weakness, soreness, tingling and/or numbness in the hands, wrists, arms, shoulders, neck, back, and/or legs.



To increase your comfort and safety when using your notebook computer as your primary computer system at your home or office, note the following recommendations:

- use a separate, external keyboard attached to your notebook computer
- use a separate, external monitor attached to your notebook computer.

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## ARRANGE YOUR EQUIPMENT

Arrange your equipment so that you can work in a natural and relaxed position. Place items that you use frequently within easy reach. Adjust your workstation setup to the proper height (as described in this appendix) by lowering the table or stand that holds your computer equipment or raising the seat height of your chair. Position your notebook computer directly in front of you for increased safety and comfort.

## ADJUST YOUR CHAIR

Your chair should be adjustable and stable. Vary your posture throughout the day.

Check the following:

- Keep your body in a relaxed yet upright position. The backrest of your chair should support the inward curve of your back.
- Use the entire seat and backrest to support your body. Tilt the backrest slightly backwards. The angle formed by your thighs and back should be 90° or more.
- Your seat depth should allow your lower back to comfortably contact the backrest. Make sure that the backs of your lower legs do not press against the front of the chair.
- Extend your lower legs slightly so that the angle between your thighs and lower legs is 90° or more.
- Place your feet flat on the floor. Only use a footrest when attempts to adjust your chair and workstation fail to keep your feet flat.
- Be sure that you have adequate clearance between the top of your thighs and the underside of your workstation.

- 
- Use armrests or forearm supports to support your forearms. If adjustable, the armrests or forearm supports should initially be lowered while all the other adjustments discussed in this appendix are made. Once all these adjustments are completed, raise the armrests or adjust the forearm supports until they touch the forearms and allow the shoulder muscles to relax.

## **ADJUST YOUR INPUT DEVICES**

Note the following points when positioning your notebook computer or any external input devices.

- Position your keyboard directly in front of you. Avoid reaching when using your keyboard or mouse.
- If you use a mouse, position it at the same height as the keyboard and next to the keyboard. Keep your wrists straight and use your entire arm when moving a mouse. Do not grasp the mouse tightly. Grasp the mouse lightly and loosely.
- Adjust the keyboard height so that your elbows are near your body and your forearms are parallel to the floor, with your forearms resting on either armrests or forearm supports, in the manner described previously. If you do not have armrests or forearm supports, your upper arms should hang comfortably at your sides.
- Adjust the keyboard slope so that your wrists are straight while you are typing.
- Type with your hands and wrists floating above the keyboard. Use a wrist pad only to rest your wrists between typing. Avoid resting your wrists on sharp edges.
- Type with your wrists straight. Instead of twisting your wrists sideways to press hard-to-reach keys, move your whole arm. Keep from bending your wrists, hands, or fingers sideways.

- 
- Press the keys gently; do not bang them. Keep your shoulders, arms, hands, and fingers relaxed.

## **ADJUST YOUR SCREEN OR MONITOR**

Correct placement and adjustment of the screen or external monitor can reduce eye, shoulder, and neck fatigue. Check the following when you position the screen or external monitor.

- Adjust the height of your screen or external monitor so that the top of the screen is at or slightly below eye level. Your eyes should look slightly downward when viewing the middle of the screen or external monitor.
- Position your screen or external monitor no closer than 12 inches and no further away than 28 inches from your eyes. The optimal distance is between 14 and 18 inches.
- Rest your eyes periodically by focusing on an object at least 20 feet away. Blink often.
- Position the screen or external monitor at a 90° angle to windows and other light sources to minimize glare and reflections. Adjust the monitor tilt so that ceiling lights do not reflect on your screen or external monitor.
- If reflected light makes it hard for you to see your screen or external monitor, use an anti-glare filter.
- Clean your screen or external monitor regularly. Use a lint-free, non-abrasive cloth and a non-alcohol, neutral, non-abrasive cleaning solution or glass cleaner to minimize dust.
- Adjust the screen or external monitor's brightness and contrast controls to enhance readability.
- Use a document holder placed close to the screen or external monitor.

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- Position whatever you are looking at most of the time (the screen or reference material) directly in front of you to minimize turning your head while you are typing.
  - Get regular eye check-ups.

## **VARY YOUR WORKDAY**

If you use your computer for prolonged periods, follow these instructions.

- Vary your tasks throughout the day.
- Take frequent short breaks that involve walking, standing, and stretching. During these breaks, stretch muscles and joints that were in one position for an extended period of time. Relax muscles and joints that were active.
- Use a timer or reminder software to remind you to take breaks.
- To enhance blood circulation, alter your sitting posture periodically and keep your hands and wrists warm.



For more information on workstation setup, see the American National Standard for Human Factors Engineering of Visual Display Terminal Workstations. ANSI/HFS Standard No. 100-1988. The Human Factors Society, Inc., P.O. Box 1369, Santa Monica, California 90406

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## **PRE-EXISTING CONDITIONS AND PSYCHOSOCIAL FACTORS**

Pre-existing conditions that may cause or make some people more susceptible to musculoskeletal disorders include the following: hereditary factors, vascular disorders, obesity, nutritional deficiencies (e.g., Vitamin B deficiency), endocrine disorders (e.g., diabetes), hormonal imbalances, connective tissue disorders (e.g., arthritis), prior trauma (to the hands, wrists, arms, shoulders, neck, back, or legs), prior musculoskeletal disorders, aging, fluid retention due to pregnancy, poor physical conditioning and dietary habits, and other conditions.

Psychosocial factors associated with these disorders include: workplace stress, poor job satisfaction, lack of support by management, and/or lack of control over one's work.

Contact a doctor if you experience pain, tenderness, swelling, burning, cramping, stiffness, throbbing, weakness, soreness, tingling and/or numbness in the hands, wrists, arms, shoulders, neck, back, and/or legs.

*This appendix was prepared in consultation with Dr. David Rempel of the University of California/San Francisco Ergonomics Program and Mr. M.F. Schneider of HUMANTECH, Inc., Ann Arbor, Michigan.*

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# **B Specifications and Environment**

The following specifications are standard except where noted.

## **System Processor**

Intel P54LM-75MHz

## **Random Access Memory (RAM)**

Standard Main Memory — 8-MB high-speed interleaved access

Expansion (optional) — Two slots for DIMM sockets. Expandable in 4-MB, 8-MB, 16-MB increments up to a total of 40-MB.

Video RAM — 1 MB

Cache RAM — L1: 8-KB code, 8-KB data

## **Read-only Memory (ROM)**

256-KB x 8 bit, Flash ROM

## **Calendar Clock**

Year/month/day/hour/minute/second maintained by internal back-up battery

## **Input/Output (I/O) Facilities**

Integrated industry-standard interfaces

- Parallel — 1 port, 25-pin D-sub
  - Serial — 1 port, 9-pin D-sub
  - VGA — 1 port, 15-pin high-density D-sub
- 32bit Local Bus  
Hardware Windows Acceleration

- 
- External Keyboard/External Mouse — 1 port, PS/2, 6-pin MiniDin; exclusionary use
  - Expansion — 1 port, VGA CRT signal, external keyboard signal, PS/2 mouse signal
  - Phone — 1 port, RJ11
  - Power — 3-pin Mini Jack

### **Card Slots**

Two slots for two Type I/Type II PCMCIA cards or one Type III PCMCIA card. 3.3V interface.

### **Internal Fax/Modem**

Ready to accept an optional NEC (Sierra Chip Set) 14.4 Kbps v32 bis Fax/Modem with RJ11 connector. See Appendix C for common modem commands.

### **Display**

LCD

- 9.5-inch Thin-film transistor (TFT) CCFT backlit color  
Resolution — 640 x 480 pixels
- Dot Pitch — 0.3 mm
- Colors — 4,096 (64K colors on external CRT with video subsystem)
- Viewing Area — 9.5 in. diagonal
- Aspect Ratio — 4:3 (or true CRT aspect ratio)

### **Keyboard**

Membrane Ultra Low Profile 83 keys with standard QWERTY-key layout (79 keys for International)

- Function keys — 12 keys
- Cursor Control keys — 8 keys; arrow keys arranged in inverted T layout
- Numeric keypad — embedded

- 
- Fn key — function key for ROM-based key functions (5 keys for the Versa 2205C) (2 additional function keys for Windows 95)
  - Stroke — 3 mm

#### **Diskette Drive**

Standard 1.44-MB drive

- Size — 3.5 inch
- Capacity — 720 KB or 1.44 MB
- Access Time (average) — 94 ms
- Transfer Rate — 250 to 500K bps
- Interleave 1:1
- Controller — NS PC87334VJG

#### **Hard Disk Drive**

Internal 2.5-inch, 810-MB or 1-GB drive, removable

- Track-to-track seek rate — 4ms
- Average seek — 13ms (read), 14ms (write)
- Revolutions per minute — 4000
- I/F data rate — Mode 3-11 MB per second
- Media data rates — 39.5 – 27 Mbps
- 1579 cylinders x 16 heads x 63 sectors per track

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## Power

### AC Adapter

- Input Voltage — 100 to 240 volts (V) AC, 50 or 60 Hz, 1.5 A maximum
- Output Voltage — 19 V DC, 2200mA (42W)

### Battery Pack

- Type — Lithium Ion (Li-Ion)
- Output Voltage — 14.4 V
- Capacity — 2,700 mA
- Battery Life — Power Management off: 2 - 4 hours  
Power Management on: 3 - 4 hours

#### — Recharging Time

Approximately 2 hours when the system is Off  
(Quick Charge)

Approximately 6 to 7 hours when the system is On  
(Normal Charge)

#### — Bridge Battery

Fully charged, backs up memory contents and system status for up to 30 minutes under Suspend mode, but battery change time is under 5 minutes.

Charge time: 24 hours.

## Dimensions

### System Unit

- Width — 11.8 in. (302 mm)
- Depth — 9.4 in. (241mm)
- Height — 2.1 in. (53.8 mm)

### Battery Pack

- Width — 4.2 in. (108 mm)
- Depth — 4.5 in. (114.5 mm)
- Height — 0.85 in. (21.8 mm)

---

## Weight

System — 6.51 lb (2.95 kg)

Battery Pack — 1.16 lb (527.6 kg)

## Recommended Environment

### Operation

■ Temperature — 41°F to 95 F (5 C to 35 C)

■ Relative Humidity — 20% to 80% (Noncondensing)

### Storage

■ Temperature — -4°F to 104°F (-20°C to 40°C)

■ Relative Humidity — 20% to 80% (Noncondensing)

## Memory Map

The system supports system miser and video shadowing. The system supports BIOS as a cacheable area with write protection. The following table shows the system's memory map.

| MEMORY SPACE   | SIZE   | FUNCTION                           |
|----------------|--------|------------------------------------|
| 00000h-9FFFFh  | 640 KB | Base Memory                        |
| A0000h-AFFFFh  | 64KB   | Video Memory (graphics)            |
| B0000h-B7FFFh  | 32KB   | Upper Memory Block (UMB)           |
| B8000h-BFFFFh  | 32KB   | Video Memory (text)                |
| C0000h-C9FFFh  | 40KB   | Video BIOS                         |
| CA000h-E7FFFh  | 120KB  | Available Upper Memory Block (UMB) |
| E8000h-EFFFFh  | 24KB   | Miser BIOS                         |
| F0000h-FFFFFFh | 64 KB  | System BIOS ROM                    |

---

## Interrupt Controllers

Using interrupts, it is possible to change the code sequence. To change the sequence, reassign the interrupt levels. Fifteen interrupts can be used with a cascade connection of 8259INTC x 2. The table shows interrupt level assignments 0 through 15, in order of decreasing priority.

| CONTROLLER<br>MASTER/SLAVE | PRIORITY | NAME  | DEVICE                             |
|----------------------------|----------|-------|------------------------------------|
| Master                     | 0        | IRQ0  | Timer 1 counter 0 output           |
| Master                     | 1        | IRQ1  | Keyboard (Output buffer full)      |
| Master                     | 2        | IRQ2  | INT output from controller 2       |
| Slave                      | 3        | IRQ8  | Real time clock                    |
| Slave                      | 4        | IRQ9  | Reserved                           |
| Slave                      | 5        | IRQ10 | Reserved                           |
| Slave                      | 6        | IRQ11 | Reserved                           |
| Slave                      | 7        | IRQ12 | Mouse                              |
| Slave                      | 8        | IRQ13 | (Co-processor)                     |
| Slave                      | 9        | IRQ14 | Hard disk controller 1             |
| Slave                      | 10       | IRQ15 | Reserved                           |
| Master                     | 11       | IRQ3  | Serial port 2 (Internal Fax/Modem) |
| Master                     | 12       | IRQ4  | Serial port 1                      |
| Master                     | 13       | IRQ5  | Reserved                           |
| Master                     | 14       | IRQ6  | Floppy disk controller 1           |
| Master                     | 15       | IRQ7  | Parallel port 1                    |

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# C Modem Commands, Registers, and Codes

AT commands, S registers, and result codes are universally understood instructions for network communications. Most fax/modem applications automatically initialize your modem with the proper AT commands and you do not need to change anything. In case you ever do need to communicate directly with your modem, or change a setup string, the following tables list the most commonly-used AT commands, S registers, and result codes that you can use to configure and use your optional internal 14.4 Kbps data/fax modem.

## AT Commands

AT commands tell the modem how to operate. Except for the escape sequence (+++) (switch to command mode) and the **A/** command (repeat last command), precede all the commands in the following table with the letters **AT**.

Entering a command without a value is the same as entering a command with zero (0) as the value. Bold indicates the default value.

## AT COMMANDS

| COMMAND      | DESCRIPTION   |
|--------------|---|
| A            | Manual answer.  |
| A/           | Repeat last command (No <b>AT</b> needed).  |
| AT           | Attention code; precede all commands except <b>A/</b> and <b>+++</b>  |
| B, B0        | CCITT V.22 mode at 1200 bps; V.21 at 300 bps.   |
| <b>B1</b>    | Bell 212 A mode at 1200 bps; Bell 103 at 300 bps.   |
| D            | Dial the number that follows D in the command line. For example, ATDP555-1234 commands the modem to pulse dial the phone number 555-1234. |
| Modifiers:   |   |
|              | 0 to 9            Dialing digits.   |
|              | A,B,C,D,*,#    Tone dial characters.  |
|              | P                Pulse dial.  |
|              | R                Reverse originate mode.  |
|              | S= <i>n</i> Dials the telephone number <i>n</i> (0-3) stored with the <b>&amp;Zn=x</b> command.   |
|              | T                Tone dial.   |
|              | <b>W</b> Wait for dial tone. (Time specified in register S6)  |
|              | ,                Pause. (Time specified in register S8)   |
|              | !                Flash hook.  |
|              | @                Wait for quiet answer. (Time specified in register S6)   |
|              | ;                Return to command mode.  |
|              | L                Dial last number.  |
| E, E0        | Disable modem echo to terminal in command mode.   |
| <b>E1</b>    | Enable modem echo to terminal in command mode.  |
| H, <b>H0</b> | Go on-hook (hang up).   |
| H1           | Go off-hook.  |

---

## AT COMMANDS

| COMMAND      | DESCRIPTION  |
|--------------|--|
| I, I0        | Display 14,400 (Identification code).                                      |
| I1           | Return actual checksum on ROM.   |
| I2           | Return OK/ERROR on RAM checksum.   |
| I3           | Display firmware revision.   |
| I4           | Display configuration settings.  |
| L0, L1       | Low speaker volume.  |
| <b>L2</b>    | Medium speaker volume.   |
| L3           | High speaker volume.   |
| M, M0        | Turn speaker off.  |
| <b>M1</b>    | Turn speaker on until Carrier Detect (CD).                                 |
| M2           | Set speaker to always on.  |
| M3           | Turn speaker on until CD except during dialing.                            |
| N0           | Force line speed set by S37 register.                                      |
| <b>N1</b>    | When originating, auto line speed starting with speed set in S37 register. |
| O, O0        | Return to Online Data mode from Online Command mode.                       |
| O1           | Go online and initiate retrain.  |
| <b>Q, Q0</b> | Display result codes (Quiet disabled).                                     |
| Q1           | Do not display result codes (Quiet enabled).                               |
| Q2           | No call progress messages in answer mode.                                  |
| Sr=n         | Set S register <i>r</i> to value <i>n</i> .                                |
| Sr?          | Show value in S register <i>r</i> .  |
| V, V0        | Display numeric result codes (Verbose disabled).                           |
| <b>V1</b>    | Display full-word result codes (Verbose enabled).                          |

---

## AT COMMANDS

| COMMAND                | DESCRIPTION   |
|------------------------|---|
| W0                     | No negotiation progress messages, report connect at DTE speed.                                |
| W1                     | Return negotiation progress messages, report connect at DTE speed.                            |
| W2                     | No negotiation progress messages, report connect at DCE speed.                                |
| X, X0                  | Modem ignores dial tone and busy signal, enables and displays CONNECT result code.            |
| X1                     | Modem ignores dial tone and busy signal; CONNECT speed result code enabled.                   |
| X2                     | Modem ignores busy signal; CONNECT speed result code enabled. (Includes dial tone detection.) |
| X3                     | Modem ignores dial tone; CONNECT speed result code enabled.                                   |
| <b>X4</b>              | Modem recognizes dial tone and busy signal; CONNECT speed result code enabled.                |
| <b>Y, Y0</b>           | Disable long-space disconnect.  |
| Y1                     | Enable long-space disconnect.   |
| <b>Z, Z0</b>           | Reset modem and recall User Profile 0.  |
| Z1                     | Reset modem and recall User Profile 1.  |
| +++                    | Escape sequence. (Allows AT commands while online; use AT0 to go back on line.)               |
| &C, &C0                | Carrier Detect always on.   |
| <b>&amp;C1</b>         | Carrier Detect follows data carrier.  |
| <b>&amp;D, &amp;D0</b> | Modem ignores Data Terminal Ready (DTR) option.   |
| &D1                    | Go to command mode for ON-to-OFF DTR transition.  |

---

## AT COMMANDS

| COMMAND                | DESCRIPTION  |
|------------------------|--|
| &D2                    | Hang up and go to command mode for ON-to-OFF DTR transition. (Turn off auto answer.)           |
| &D3                    | Reset for ON-to-OFF DTR transition.  |
| &F                     | Reset modem and recall factory defaults (only affects current user session; is not permanent.) |
| <b>&amp;G, &amp;G0</b> | Disable guard tones (USA setting).   |
| &L, &L0                | Operate on common dialup telephone line.   |
| &L1                    | Not supported.   |
| <b>&amp;M, &amp;M0</b> | Operate in asynchronous mode. (Same as Q0)   |
| <b>&amp;P, &amp;P0</b> | Set pulse dial make/break ratio 39%/61% (USA/Canada) .   |
| &P1                    | Set pulse dial make/break ratio 33%/67% (UK/HK).   |
| &Q, &Q0                | Use asynchronous mode.   |
| &Q1, &Q2, &Q3          | Not supported.   |
| &Q4                    | Return error.  |
| <b>&amp;Q5</b>         | Data connection using V.42 or MNP.   |
| &Q6                    | Data connection using normal mode.   |
| <b>&amp;S, &amp;S0</b> | Set Data Set Ready (DSR) to be always true.  |
| &S1                    | Set DSR to follow CCITT V.24 specification.  |
| &T, &T0                | Terminate test.  |
| &T1                    | Initiate local analog loopback test (mode selected with the command %Bn).                      |
| &T3                    | Initiate local activated Remote Digital Loopback (RDL) test.                                   |
| <b>&amp;T4</b>         | Grant request from remote for Remote Digital Loopback (RDL) test.                              |

---

## AT COMMANDS

| COMMAND | DESCRIPTION  |
|---------|--|
| &T5     | Deny remote request for RDL test.  |
| &T6     | Initiate RDL test.   |
| &T7     | Initiate RDL test with self-test.  |
| &T8     | Initiate local analog loopback with self-test.   |
| &V, &V0 | View active configuration, profiles phone numbers, and S register contents.  |
| &W, &W0 | Save active configuration as User Profile 0.   |
| &W1     | Save active configuration as User Profile 1.   |
| &X, &X0 | Modem source transmit clock.   |
| &Y, &Y0 | Recall User Profile 0 on power up.   |
| &Y1     | Recall User Profile 1 on power up.   |
| &Zn=x   | Store telephone number <i>x</i> in directory entry <i>n</i> ( <i>n</i> =0-3, <i>x</i> =36 characters maximum.)<br>For example, to store phone number (555)555-5555, you enter AT&Z0=5555555555. This stores the phone number in position 0. To dial the number, issue the following command:<br>ATDS=0 |
| \G0     | Turn off Xon/Xoff software flow control. (See also \Q3 hardware flow control).   |
| \G1     | Turn on Xon/Xoff software flow control.  |
| \N0     | Normal mode (non MNP, buffered data)   |
| \N1     | Direct mode (non MNP, data not buffered)   |
| \N2     | Reliable MNP mode (Attempts MNP connection; if unsuccessful, then disconnects.)  |
| \N3     | Auto reliable mode (MNP if remote is MNP; otherwise, normal.)  |
| \N4     | Reliable LAPM mode.  |
| \N5     | Auto-reliable LAPM and buffer mode.  |

---

## AT COMMANDS

| COMMAND     | DESCRIPTION   |
|-------------|---|
| <b>\N6</b>  | Auto-reliable LAPM, MNP, and buffer mode.   |
| <b>\Q0</b>  | Disable DTE flow control.   |
| <b>\Q1</b>  | Bi-directional Xon/Xoff.  |
| <b>\Q2</b>  | Unidirectional CTS interface signal.  |
| <b>\Q3</b>  | Bidirectional hardware flow control. (RTS/CTS)  |
| <b>\T0</b>  | Disconnects if no activity for specified time; use values 0-90 (seconds). If value = 0 (default), the time is disabled. |
| <b>\V0</b>  | Disable MNP responses.  |
| <b>\V1</b>  | Enable MNP responses.   |
| <b>%C0</b>  | Disable Data Compression.   |
| <b>%C1</b>  | Enable Data Compression.  |
| <b>%E0</b>  | Disable Auto Retrain.   |
| <b>%E1</b>  | Enable Auto Retrain.  |
| <b>#CC0</b> | Disable Caller ID.  |
| <b>#CC1</b> | Format modem for single message sent to DTE.  |

---

## S Registers

The modem provides S registers to let you control many of its parameters. Some of these S registers are Read-Only (RO) registers. Some are bit mapped. For bit-mapped S registers, each option controlled by the register is assigned a bit. The state of the bit determines whether the option is enabled. The value of the S register is then set by adding the values of all bits representing enabled options.

### S Register

| REGISTER | DEFAULT | DESCRIPTION   |
|----------|---------|---|
| S0       | 0       | Auto-answer on number of rings.                                   |
| S1       | 0       | Ring count.   |
| S2       | 43      | Escape Character (+) (ASCII value in decimal; disabled above 127) |
| S3       | 13      | Carriage Return character code (ASCII value in decimal).          |
| S4       | 10      | Line Feed character code (ASCII value in decimal).                |
| S5       | 08      | Backspace character code (ASCII value in decimal).                |
| S6       | 02      | Seconds to wait before dialing without detecting dial tone.       |
| S7       | 40      | Seconds to wait for carrier after dial.                           |
| S8       | 02      | Seconds to pause for comma (,) dial modifier.                     |
| S9       | 06      | Tenths of seconds for Carrier Detect (CD) response time           |
| S10      | 14      | Tenths of seconds to detect Carrier loss time.                    |
| S11      | 75      | DTMF tone and pause duration.                                     |
| S12      | 40      | Return to data mode timer.  |

---

### S Register

| REGISTER | DEFAULT | DESCRIPTION   |
|----------|---------|---|
| S14      | 170     | Read-only bit mapped register.  |
| S16      | 00      | Read-only bit mapped test register.   |
| S18      | 00      | Modem test timer in seconds.  |
| S21      | 00      | Read-only bit mapped.   |
| S22      | 118     | Read-only bit mapped.   |
| S23      | 21      | Read-only bit mapped.   |
| S25      | 05      | DTR delay detect timer in seconds.  |
| S26      | 01      | .01-second delay from RTS true to CTS true.   |
| S27      | 64      | Read-only bit mapped.   |
| S37      | 00      | Maximum DCE line speed. Use the following values (See also <b>ATN</b> command):<br>0 =Speed of last AT command issued.<br>1 = 75 bps<br>2 = 110 bps<br>3 = 300 bps<br>5 = 1200 bps<br>6 = 2400 bps<br>7 = 4800 bps<br>8 = 7200 bps<br>9 = 9600 bps<br>10 =12000 bps<br>11 = 14400 bps |

---

## Result Codes

The following table shows the numeric and verbose forms of result codes the modem returns.

### RESULT CODES

| NUMERIC | VERBOSE         | DESCRIPTION   |
|---------|-----------------|---|
| 0       | OK              | Command executed.   |
| 1       | CONNECT         | Connection at 300 bps.  |
| 2       | RING            | Ring signal detected.   |
| 3       | NO<br>CARRIER   | Carrier signal not detected or lost.  |
| 4       | ERROR           | Invalid command, checksum, error in command line, or command line too long (exceeds 40 characters). |
| 5       | CONNECT<br>1200 | Connection at 1200 bps; disabled by X0.   |
| 6       | NO DIAL<br>TONE | No dial tone detected; enabled by X2, X4, or W dial modifier.                                       |
| 7       | BUSY            | Busy signal detected; enabled by X3 or X4.  |
| 8       | NO<br>ANSWER    | No silence detected when dialing a system not providing dial tone; enabled by @ dial modifier.      |
| 10      | CONNECT<br>2400 | Connection at 2400 bps; disabled by X0.   |

## **BATTERY REPLACEMENT**

A lithium battery in your computer maintains system configuration information. In the event that the battery fails to maintain system configuration information, NEC recommends that you replace the battery.

**WARNING:** There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

**ATTENTION:** Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

## **BATTERY DISPOSAL**

Your bridge battery (not your main battery) is made of nickel-cadium (Nicaid). the Nicaid bridge battery must be collected, recycled, or disposed of in an environmentally-approved manner.

Your main battery, made of Lithium Ion (Li-Ion), and your CMOS lithium battery are not recyclable.

The incineration, landfilling, or mixing of Nicaid batteries with the municipal solid waste stream is prohibited by law in most areas.

Return Nicaid batteries to a federal or state-approved recycler.

This may be where you purchased the battery or a local seller of automotive batteries. In MINNESOTA, call 1-800-225-PRBA if you need further disposal information.

Contact your local waste management officials for other information regarding the environmentally sound collection, recycling, and disposal of the batteries.

**(For United States Use Only)**

**FEDERAL COMMUNICATIONS COMMISSION  
RADIO FREQUENCY INTERFERENCE STATEMENT**

**WARNING:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** 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 to an outlet on a circuit different from the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Use shielded and properly grounded I/O cables and power cable to ensure compliance of this unit to the specified limits of the rules.

**(For Canadian Use Only)**

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

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Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouillage du Canada.