Reliable

X-C 6250 Pro
User's Manual

ITRONIX

W E K N O W T H E R O A D™

Identification
X-C 6250 Pro User's Manual
October 1999 · Revision 003

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Compliance Statements

The X-C 6250 Pro computer has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The X-C 6250 Pro computer complies with Part 68 of the FCC Rules. On the bottom of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

The X-C 6250 Pro computer may be connected to the telephone network using the RJ-11 jack provided.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If

this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact the equipment manufacturer for repair and/or warranty information. Do not attempt repairs of this equipment yourself without obtaining manufacturer authorized parts and documentation. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.

Compliance Statement for Canada

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

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

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

The Ringer Equivalence Numbers (REN) are:

X-C 6250 Pro non-radio: 0.5B

X-C 6250 Pro ARDIS: 0.5B

X-C 6250 Pro RAM: 0.5B

X-C 6250 Pro CDPD: 1.3B

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal

device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

The X-C 6250 Pro computer may be connected to the telephone network using the RJ-11 jack provided.

Fax Branding

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

In order to program this information into your fax machine, you should complete the following:

> *This information is entered through the FAX application software you have installed. Consult your FAX software documentation for instructions about entering this information.*

Warnings and Cautions

WARNING It is important that only authorized Itronix personnel attempt repairs on Itronix equipment as this might void any maintenance contract with your company. Unauthorized service personnel might be subject to shock hazard on some Itronix equipment if removal of protective covers is attempted.

The product you have purchased is powered by a rechargeable battery. The battery is recyclable and, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Do not crush the battery or place it in a fire. Check with your local solid-waste officials for details on recycling options or proper disposal.

CAUTION Internal components of the X-C 6250 Pro computer will be damaged if exposed to contaminants. When dust covers, the PC card door, or the battery door are open on the computer, shield the unit from all contaminants such as liquids, rain, snow, and dust.

Federal Communication Commission (FCC) Regulations for the Stand Alone Charger

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a

residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

"The equipment has been approved to [Commission Decision "CTR21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN). However, due to differences between individual PSTNs provided in different countries the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Safety Information

The following safety symbols are used in this manual to indicate potentially dangerous situations. Do not proceed beyond a WARNING or CAUTION symbol until the indicated conditions are fully understood and met.

CAUTION This caution statement denotes a hazard. It calls attention to a procedure or practice that could result in damage to or destruction of part or all of the product if not performed correctly.

WARNING This warning denotes a hazard. It calls attention to a procedure or practice that could result in personal injury if not performed correctly.

About This Manual

The *X-C 6250 Pro User's Manual* provides information about using the X-C 6250 Pro computer and some of its peripherals.

If you've never used this computer (or any computer) before, the first three sections contain important information to get you started successfully. To help you become a proficient user or just to make your daily tasks easier, try using the tools that reside on your system listed on page viii.

If you're an experienced computer user already familiar with Windows, Section 3, "Getting Started," provides important setup procedures for the computer. Section 5 shows you how to customize system settings.

If you don't read anything else in this manual, turn to Section 7 and read about batteries and power. Following the tips outlined in this section can significantly increase the life of your batteries.

Inside

For More Help

If you need help, or if you want to learn more about your computer, use the following resources already installed on your system.

- If you need help using an application, refer to the application's online Help. Start the application, select Help from the menu bar, and then choose the item you want.
- To learn about using Windows 95, a ten-minute tutorial is accessible from the Start Menu by selecting Help, Contents, "Tour: Ten Minutes to Using Windows."
- For help using Windows 95, refer to the online Help on your system. To access this information, select Help from the Start Menu.

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SECTION 1

Features of the Computer

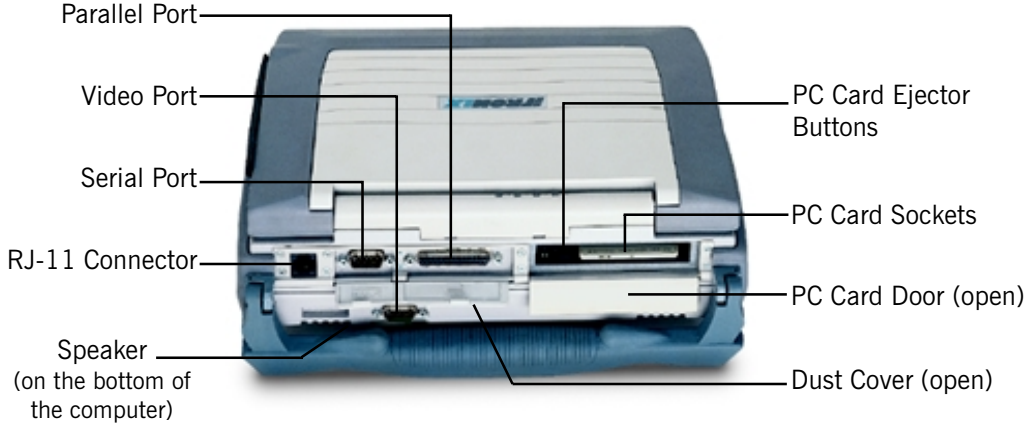
Introduction

The X-C 6250 Pro mobile computer is a ruggedized, weather-sealed computer system built for the demanding environment of the mobile worker. Designed for use by large mobile workforces, this computer is one of the most practical work tools for collecting, managing, and communicating information in the field.

The following pages describe the external and internal features of your X-C 6250 Pro computer.

Individual Parts

These diagrams and descriptions provide an overview of the computer.



The labeled components are described below.

- *9-Pin Serial Port* This port can be used for serial communications, bar code input, connection to a printer, or other purposes.
- *15-Pin Video Port* This port can be used to connect an external monitor (see Section 9 of this manual for more information).
- *25-Pin Parallel Port* This port can be used to connect optional devices such as a printer.
- *Antenna* If you have a radio modem installed in your computer, the antenna sends and receives radio waves for this modem.
- *Audio Port* A custom port designed to connect to an adapter such as a telco or multimedia adapter.
- *Battery Door and Latches* This door covers the Nickel Metal-Hydride (NiMH) battery. If you unlatch the battery door before turning off the computer first, the system automatically powers off the unit to protect data on the hard disk.
- *Display* Display options include monochrome, color, or touch screen. The screen can be illuminated in low-light conditions by turning on the backlight or MaxBright (FN+F1).
- *Dust Covers* These covers provide added protection for the serial, parallel, and video ports when they are not being used.
- *Keyboard* The keyboard is environmentally sealed and designed with 93 percent standard key spacing.
- *Microphone* The microphone allows a user to talk to another person using the internal modem and the Speaker Phone application.
- *Mouse Pointer and Buttons* The integrated mouse pointer is located directly below the spacebar on the keyboard. The left and right mouse buttons are located on either side of the mouse.
- *PC Card Door* This door covers the PC card sockets. When this door is open, shield the unit from all contaminants such as liquids, rain, snow, and dust.
- *PC Card Sockets* PC cards are inserted into these sockets. To remove a card, press the *ejector button* located to the left of the each socket.

- *Power Port* This port is used to connect the external power supply to the computer.
- *RJ-11 Connector* This port is used by the internal modem to communicate over standard voice grade telephone lines.
- *Speaker* Located on the bottom of the computer, the speaker provides sound for the unit. Use the FN+F6 and FN+F7 keys to adjust speaker volume.
- *USB Port* The Universal Serial Bus port is a series Type A USB connector.

Indicator Lights

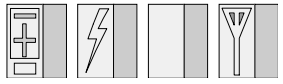
Located below the display, these lights blink or remain on or off to indicate activity on the system.

The *On/Off* light illuminates when you power on the computer; it blinks to indicate a low battery.

The *External Power* light illuminates when external power is connected to the computer. It blinks while the external power supply is charging the battery and remains on when the battery is fully charged.

The *Disk Activity* light comes on when the hard disk is spinning or processing data.

The *Radio On/Off* light illuminates when the radio modem is powered on (if your computer is equipped with a radio modem). If the computer is off and you receive a message, the light blinks to indicate a message is waiting.



Standard Hardware

- National Instruments® 266 megahertz (MHz) GXm® processor
- 32, 64, 96, or 128 Megabytes (MB) of Random Access Memory (RAM)
- 1 MB of internal video RAM
- Monochrome, color, or touch screen display that opens to 180 degrees
- Internal hard disk
- Weather sealed keyboard with 93 percent standard key spacing
- Video port with a standard 15-pin D connector
- USB port that is a series Type A USB connector
- 2 PC card sockets supporting two Type I or II cards, or one Type III card
- Nickel Metal Hydride (NiMH) battery
- Display contrast and speaker volume adjustment keys
- Backlight toggle key and adjustment keys (monochrome display)
- Backlight adjustment keys (color display)
- MaxBright toggle key (10.4-inch color display only)
- Automatic temperature compensation of display contrast
- Integrated mouse pointer
- AC adapter

Optional Hardware

- Stand Alone Charger
- Vehicle Adapter
- Vehicle Cradle
- RF modem
- Bar code wand
- Bar code laser scanner

- Hand-held laser scanner
- External 3.5-inch floppy drive
- External CD-ROM drive
- Internal modem

Standard Software

- Microsoft® Windows® 95, 98 and NT
- National Instruments's Virtual System Architecture™ (VSA™)

  Allows XpressGRAPHICS™ and XpressAUDIO™ as well as generic 16-bit emulation capabilities (SoundBlaster®16).
- Speaker Phone

  Allows you to dial a number and talk with someone, just like a telephone.
- Battery Maintenance

  Allows you to deep cycle discharge batteries.
- Battery Status

  Provides current information about the battery including voltage, temperature, and remaining capacity.
- Documentation in PDF format

  A User's Manual resides on the computer's desktop as a PDF file.
- Practical Battery Tips

  Lists important information about battery use and proper maintenance.
- Keyboard Status

  Shows the status of the Num Lock and Caps Lock keys. Icons appear on the Windows 95 Taskbar when Num Lock or Caps Lock are activated.
- HyperTerminal

  Enables you to connect your computer to other computers and exchange information.

Optional Software

- Battery History

  Tracks all major power and battery events in the system and generates a timeline of power events and usage.

- Password Security

  Prevents unauthorized users from gaining access to information on the computer.

MS-DOS Utilities

- MODEM

  Allows you to turn on the internal modem before running an MS-DOS® application.

- XCPRF

  Installs the radio modem power management TSR.

- RADIO

  Reports the status of the radio modem; turns the radio modem on and off.

- BATTMON

  Logs battery and power usage statistics for later viewing and diagnostic purposes.

If You Have a Touch Screen

If you have a touch screen, follow the guidelines below.

CAUTION

- Always use an approved stylus.
- Never use sharp, hard, or abrasive implements on the touch screen such as ball point pens, pencils, or keys. They could damage the screen.
- To clean the touch screen panel, apply a household glass cleaner to a soft, clean, dry cloth and wipe the screen.

To use the stylus

- Slide the stylus out of its holder.

  If you have a shoulder strap, you may have a slot on the strap to hold the stylus.
- To replace it, slide it into the appropriate slot point first.

If you cannot select objects accurately with the stylus, you may need to recalibrate the touch screen.

To calibrate the touch screen

1 From the Start Menu, select Programs, Touch, and then choose Touchscreen Controls.

2 Select the Calibration button.

3 Follow the instructions on the screen to calibrate the touch screen.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SECTION 2

Using the Keyboard and Mouse

Keyboard Basics

The keyboard on the mobile computer looks much like the keyboard of a typewriter and operates in almost the same way. While typewriter keys put characters on paper, the keys on the laptop enter characters in the computer and perform certain functions, depending on the application or program. Typing skills are helpful but are not essential because typing short commands or responses is easy.

The mobile computer features:

- A typewriter-style keyboard
- Twelve function keys, F1-F12
- Embedded numeric keypad
- Mouse keys
- Special Function Keys (85-Key Keyboard Only)

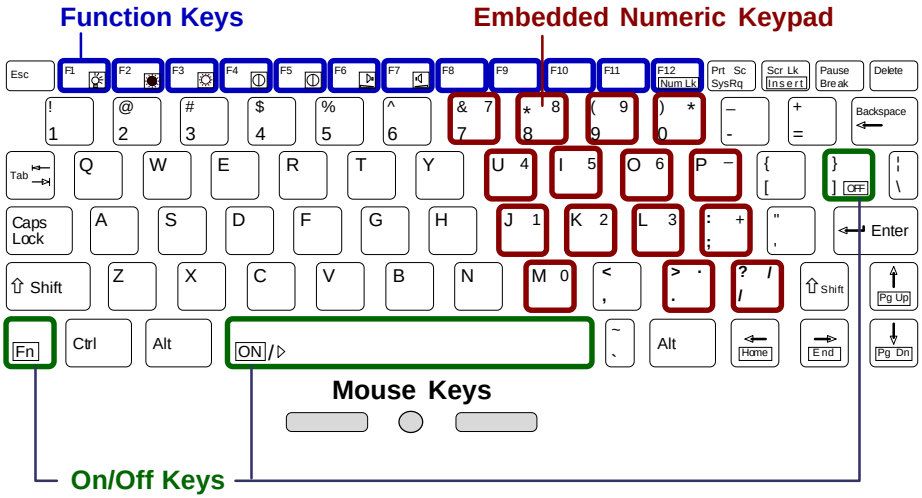
CAUTION You can restart the mobile computer using the following keys; however, restarting your computer while you are running applications or working in Windows may corrupt files or data.

Restarting the Computer

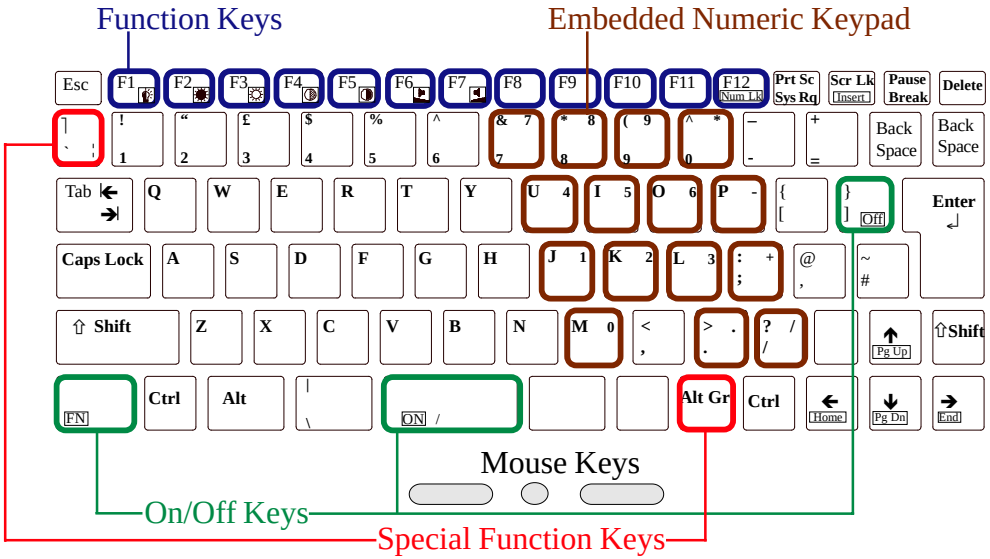
Press...	To do this
CTRL+ALT+DEL	Reboot the computer.
Press and hold both mouse buttons for about ten seconds and then release the buttons.	Reset the computer.

Primary Keys

Key	Description
ALT	The ALT (alternate) key is used with other keys to perform special tasks. Pressing CTRL+ALT+DEL resets the computer. Processing stops and the computer attempts to restart the operating system.



79-Key USA Keyboard



85-Key International
(UK Layout) Keyboard (Optional)

ALT GR	The ALT GR key, a special function key found on the 85-key keyboard, when pressed and held, allows you to use characters in the bottom right of a three character key.
BACKSPACE	The BACKSPACE key, sometimes represented on the keyboard as a left arrow, moves the cursor one position to the left. The character to the left of the cursor is erased. On the 85-key International Keyboard the key to the right of the BACKSPACE key is also designed to move the cursor one position to the left. The character to the left of the cursor is erased. If other functions are designed for this key, the key will be printed with the appropriate legend.
CAPS LOCK	Pressing the CAPS LOCK key one time locks keys A through Z in the UPPER CASE position. Pressing the CAPS LOCK key again returns the letters to lower case. While in the upper case mode, pressing the SHIFT key results in lowercase characters when entered. You still have to use the SHIFT key to display characters located on the upper portion of the keyboard. For example, press SHIFT+8 to type an asterisk (*), even when the CAPS LOCK key is activated.  This icon appears on the Taskbar when Caps Lock is activated.
Key	Description
CTRL	The CTRL (control) key works with other keys to perform a variety of functions.
ENTER	The ENTER key signals the computer that you have completed your entry. This is your way of telling the computer to process the information that you have entered.
ESC	The ESC (escape) key cancels the current line if you are working in DOS. In some DOS applications, pressing the ESC key backs you out of your last menu selection. In Windows, the ESC key allows you to exit a pop-up window or message box.

PRT SC	In Windows, pressing the PRT SC (print screen) key copies the current screen or window to the clipboard so you can paste it into documents. Pressing ALT+PRT SC key copies the active window to the clipboard.
SHIFT	The SHIFT key changes the keys A through Z to the UPPER CASE position. When you press an alphabetic key, the character appears as a capital letter. When you press SHIFT with other keys, the characters on the upper part of the keys appear. For example, pressing SHIFT+7 displays an ampersand (&).
FN	Function. Some special keys have been established to perform important tasks when pressed and held with the FN key. These keys are described later in this document.
SPACEBAR	Use the SPACEBAR to enter a space and move the cursor one character to the right. If you press FN and the SPACEBAR at the same time, your computer turns on. On the 85-key International Keyboard the two keys to the right of the SPACEBAR are also designed to enter a space and move the cursor one character to the right. If other functions are designed for these keys, the keys will be printed with the appropriate legends.
TAB	The TAB key moves the cursor to the next tab stop or field. Tab stops are defined by your operating system or application program. Press the TAB key to move from one field or text box to another.

Arrow Keys

The arrow keys are defined by the software application.

The UP ARROW key usually moves the cursor up one line. In some cases, you can use the up arrow to make selections from menus and scrollable list boxes.

The DOWN ARROW key usually moves the cursor down one line. In Windows, you can use the down arrow to make selections from menus and scrollable list boxes.

The RIGHT ARROW key usually moves the cursor one character position to the right.

The LEFT ARROW key usually moves the cursor one character position to the left.

In Windows, you can use the arrow keys instead of the mouse.

Key	Description
FN+END	Pressing FN+END (FN+RIGHT ARROW) activates the End key. The function of the End key is defined by the application being used.
FN+HOME	Pressing FN+HOME (FN+LEFT ARROW) activates the Home key. The function of the Home key is defined by the application with which you are working.
FN+PGDN	Pressing FN+PGDN (FN+DOWN ARROW) activates the page down key. The Page Down key is defined by the application being used. It usually causes the next screen or window to appear.
FN+PGUP	Pressing FN+PGUP (FN+UP ARROW) activates the page up key. The Page Up key is defined by the application you use. It usually causes the previous screen or window to appear.

Numeric Keypad

The numeric keypad is embedded in the keyboard area. The embedded keypad emulates the numeric keypad typically found on a full-size keyboard. It is arranged like a calculator for applications that require you to key many numbers or for use with the Calculator in the standard Windows Accessories.

This icon appears on the Windows 95 Taskbar when Num Lock is enabled:

Num Lock icon

Below are descriptions of the keys when NUM LK is pressed.

Key	Description
NUM LK (FN+F12)	Numeric Lock. Pressing the FN+NUM LK keys places the embedded numeric keypad in the numeric state. Pressing 0 through 9 generates numbers. Pressing FN+NUM LK again returns keys back to their original state. For example, when NUM LOCK is on, the *u* key generates a 4 when pressed. When NUM LOCK is off, the keys return to their alphabetic setting.
Minus (-)	The Minus key is used to subtract numbers.
Plus (+)	The Plus key is used to add numbers.
Asterisk (*)	The Asterisk key is used to multiply numbers.
Forward Slash (/)	The Forward Slash key is used to divide numbers.
Period (.)	The period key inserts a decimal point.
ENTER	The ENTER key generates a total for calculations you have entered.

FN Keys

On the mobile computer, you must press the FN key in combination with other keys to perform various tasks. These keys are labeled with a small box around the command. For example:

FN+PGDN 

Press...	To do this
FN+ON	Turn on the computer
(FN+SPACEBAR)	
FN+OFF	Turn off the computer
FN+F1	Toggle the backlight on and off (monochrome display)
FN+F1	Toggle MaxBright on and off (10.4-inch color display only)
FN+F2	Dim the display backlight
FN+F3	Brighten the display backlight

FN+F4	Lighten the display contrast (not available on the 10.4-inch color display)
FN+F5	Darken the display contrast (not available on the 10.4-inch color display)
FN+F6	Decrease the volume
FN+F7	Increase the volume
FN+NUM LK	(FN+F12) Toggle NUM LOCK on and off (In NUM LOCK mode, the blue keys on the keyboard emulate a numeric keypad.)
FN+INSERT	Toggle Insert mode on and off
FN+END	Activate the End key. The function of the End key is defined by the application being used.
FN+HOME	Activate the Home key. The function of the home key is defined by the application with which you are working.

Press...	To do this
FN+PGDN	Activate the Page Down key. This key is defined by the application being used. It usually causes the next screen or window to appear.
FN+PGUP	Activate the Page Up key. This key is defined by the application you use. It usually causes the previous screen or window to appear.

Function Keys

Key	Description
F1 - F12	The Function keys are located at the top row of the keyboard. How you use function keys F1 through F12 depends upon the application that is running.

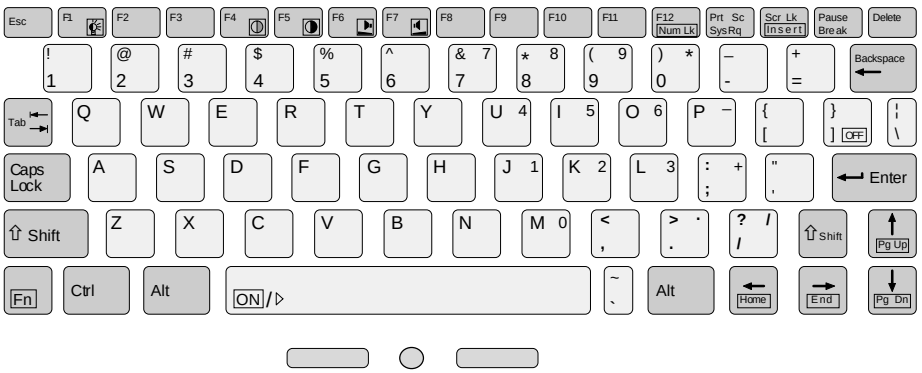
Other Keys

Key	Description
DEL	Delete. In DOS, the DEL key deletes one character to the left of the cursor's position. In Windows, the DEL key deletes highlighted text, selected objects or graphics, and single characters of text located one position to the right of the cursor.
FN+INSERT	The Insert key is activated by pressing FN+INSERT (FN+SCR LK). The Insert key may vary with the software being used.
PAUSE	Momentarily pauses or stops the display.
SCROLL LOCK	The function of the SCROLL LOCK key depends on the software being used. It is often used to keep the cursor in one position while the text moves.

Using the Mouse

The mouse (pointer device) and its buttons (controls) are located at the bottom of the keyboard just below the space bar. The mouse, which looks like a gray eraser head, is positioned between the left and right mouse buttons at the bottom of the keyboard.

Apply light pressure to the mouse in the direction you want to move the pointer around the screen. You can move the pointer to the icon or menu you want, and click with the left, primary mouse button for most operations. Or, double-click the left, primary mouse button twice rather quickly for certain operations. Use the left, primary mouse button to either click or double-click, which is based on the task you are performing.



Mouse Keys

The following table describes the meaning of terms used with the mouse.

Term	Meaning
Point	To move the mouse until the mouse pointer on the screen points to the item of choice.
Click	To quickly press and release the left, primary mouse button. To select an icon, you must point and click on that icon. Usually, you point and click on buttons, menu bars, menu options, and drop-down list boxes.

Term	Meaning
Double-click	To click the left, primary mouse button twice in rapid succession. Pointing and double-clicking on an application icon opens or launches the program associated with the icon.
Drag	To point, click, and press and hold down the left, primary mouse button while you move the mouse. You use drag to move icons from one window or directory to another. To select text in a data entry field, you place the cursor at the beginning of the text, click on the left, primary mouse button, and drag the cursor over text. You can then delete or type over the text.

General Guidelines

The mobile computer uses a Liquid Crystal Display (LCD), which is the type of screen used on many notebook and sub-notebook computers. One problem experienced on computers with an LCD display, especially in cold environments, is that the cursor seems to “disappear” whenever the mouse is moved quickly. To improve the visibility of the mouse cursor, you should:

- Enable the “Pointer Trails” feature to add trailing cursors.
- Use a slow or medium speed/sensitivity level.

You can combine a higher level of acceleration with a slow or medium speed/sensitivity level. This will allow you to move the mouse cursor quickly by increasing your finger pressure, while still providing a finer degree of control when you apply minimum pressure.

Changing the Speed of the Mouse

To change the speed of the mouse, from the Start Menu select Settings, Control Panel, and then choose Mouse to make adjustments.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SECTION 3

Getting Started

Introduction

This section includes procedures for setting up and using your computer for the first time.

PRECAUTIONS

Please be aware of the following important information before you begin operating your computer.

- Data stored on floppy disks may be corrupted if the disks come in close contact with the magnetic components of the computer. Do not lay a floppy disk on top of or under the computer.
- The internal components of the computer will be damaged if exposed to contaminants. When dust covers, the PC card door, or the battery door on the computer are open, shield the unit from all contaminants such as liquids, rain, snow, and dust.
- You can lose data if you remove the battery while the computer is operating on battery power. Turn off the unit by pressing FN+OFF before you remove the battery. You can also lose data if the battery is removed for more than 10 minutes.
- CAUTION If you have a touch screen:

  -Always use an approved stylus.

  -Never use sharp, hard, or abrasive implements on the touch screen such as ball point pens, pencils, or keys. They could damage the screen.
- WARNING The computer is powered by a rechargeable Nickel Metal Hydride (NiMH) battery. Disposing of this battery improperly can cause serious personal injury. Do not crush the battery or place it in a fire. The battery is recyclable and, under various state and local laws, it may be illegal to dispose of the battery into the municipal waste stream. Check with your local solid-waste officials for details on recycling options or proper disposal.

The First Time...

Using your computer for the first time involves:

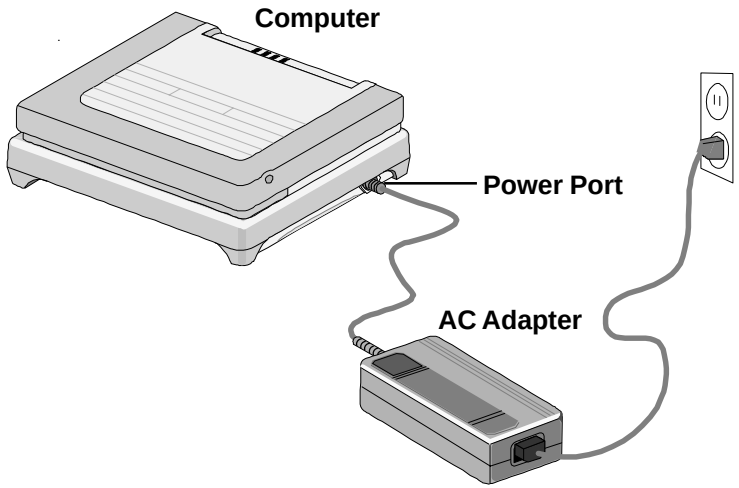
- Connecting the AC adapter to the computer
- Installing and charging the battery

Connecting the AC Adapter

To connect the AC adapter

1 Attach the power cord to the AC adapter, and then connect the appropriate end of the cord to an AC wall outlet.

2 Insert the other end of the AC adapter cable into the computer's power port on the side of the unit.



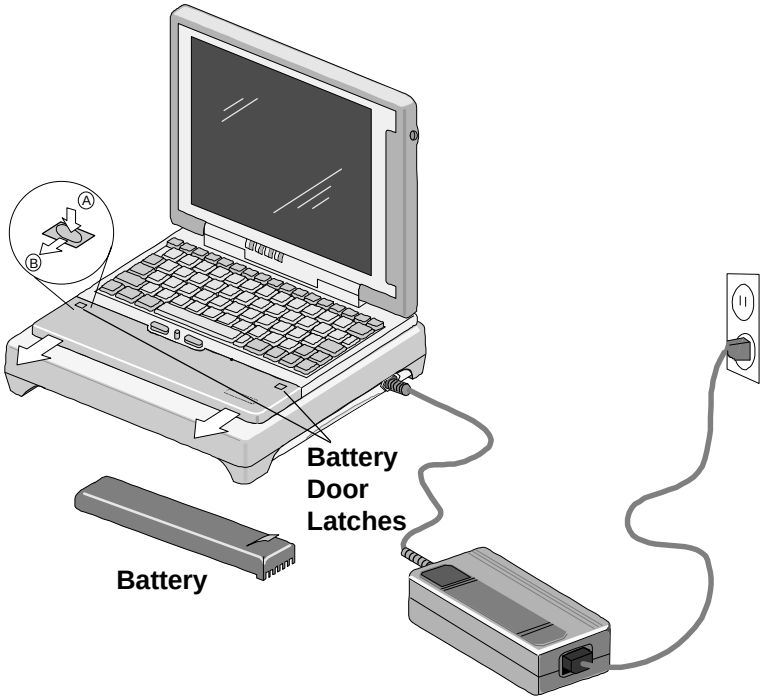
Installing and Charging the Battery

The Nickel Metal Hydride (NiMH) battery supplied with your computer should be fully charged before you operate the unit on battery power. To increase battery capacity, follow the recommendations about deep cycle discharging later in this manual.

To install the battery

1 Lift up the display and locate the battery door in front of the keyboard.

2 Open the battery door by pushing the two latches down and then sliding it away from the unit.



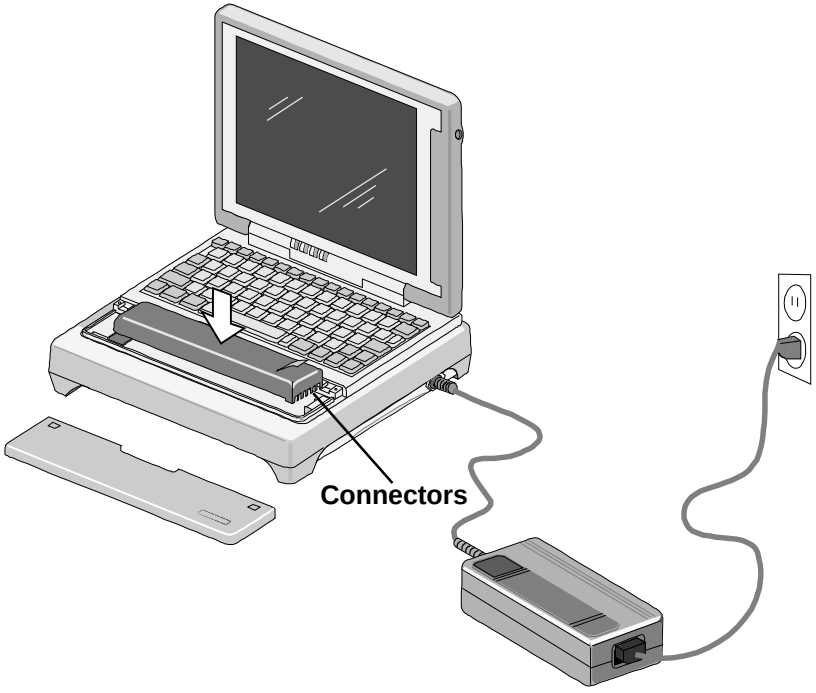
3 Align the battery connectors as shown in the diagram below, and then place the battery in the computer.

4 Replace the battery door by sliding it toward the keyboard and latching it into place.

The battery starts charging automatically.

The computer's external power light on the indicator panel blinks while the battery is charging; it stops blinking and remains on when the battery has completed charging. At moderate temperatures, approximately 21°C (70°F), the battery will be fully charged in three to four hours. In extremely hot or cold temperatures, it may take up to 16 hours to charge the battery.

> Note Keep the display tilted open while the battery is charging to help prevent the battery from overheating.



Turning the Computer On and Off

You can operate the computer while the battery is charging.

To turn on the computer

1 Press FN+ON (FN+SPACEBAR).

Note: If the computer does not power on, restart it by holding down both mouse buttons for at least 10 seconds, and then releasing the buttons.

2 Adjust the display contrast control for a sharp, clear display.

- FN+F4 lightens the display
- FN+F5 darkens the display

Note: If you have a 10.4-inch color display, these keys are not active.

3 Adjust the backlight if necessary.

- On a monochrome display, pressing FN+F1 toggles the backlight on and off.
- On a color display, the backlight is on whenever the computer is running. Pressing FN+F1 toggles the MaxBright feature on and off.

4 Make sure the date and time are correct by choosing the Date/Time icon from Control Panel and making any needed changes.

To turn off the computer

- Press FN+OFF.

When you power the computer back on, the system resumes from where you left off. To conserve battery power, turn off the computer whenever you are not using it.

> Note The system automatically turns off (suspends) the unit after a period of continuous idle time. You can resume where you left off by pressing FN+ON.

Startup Problems?

If your computer does not operate, try these solutions.

- Connect the AC adapter to charge the battery if it is not charged.
- If the AC adapter is connected, make sure the electrical outlet you are using works.
- Check to make sure the battery is installed and charged properly.
- Check the battery door latches to make sure the door is closed and secured.
- If the computer does not turn on, restart the system by holding down both mouse buttons for at least 10 seconds and then releasing the buttons.
- If the battery doesn't begin charging, remove the battery, connect the AC adapter, and turn on the computer by pressing FN+ON. Reinstall the battery. The indicator light blinks while the battery is charging.

Appendix B, "Troubleshooting," lists additional solutions you can try.

If You Have a Touch Screen

CAUTION

- Always use an approved stylus.
- Never use sharp, hard, or abrasive implements on the touch screen such as ball point pens, pencils, screw drivers or keys. They could damage the screen.
- To clean the touch screen panel, apply a household glass cleaner to a soft, clean, dry cloth and wipe the screen. A soft, dry cotton cloth may be used to eliminate fingerprints on the screen if household cleaner is unavailable.

To use the stylus

- Slide the stylus out of its holder.

  If you have a shoulder strap, you may have a slot on the strap to hold the stylus.

- To replace it, slide it into the appropriate slot point first.

If you cannot select objects accurately with the stylus, you may need to recalibrate the touch screen.

To calibrate the touch screen

1 From the Start Menu, select Programs, Touch, and then choose Touchscreen Controls.

2 Select the Calibration button.

3 Follow the instructions on the screen to calibrate the touch screen.

Password Security

If your computer is equipped with security software configured appropriately, you can activate or deactivate password security. To learn more about the security software, refer to its online help.

To activate or deactivate security

1 Select the Password Security icon in the Mobile Computer Tools folder.

2 Enter your current password and check the box to be able to get into the Change Password screen.

  If you are using the computer for the first time, enter the default password provided by your company.

3 If the Activate Security field is available to change, toggle the field to the desired setting (contact your supervisor or help desk if you don't have access to this field and need it).

  If you set the Activate Security field, this activates password security and you are prompted for a password whenever keyboard or mouse inactivity exceeds the time specified in the Inactivity Delay field. If you clear the Activate Security field, you are not prompted for a password.

Setting or Changing Your Password

Setting or changing your password is a way to make sure unauthorized users do not gain access to the information stored on your computer. If your computer is equipped with security software, follow these instructions to set or change your password.

To set or change your password

1 Select the Password Security icon in the Mobile Computer Tools folder.

2 Enter your current password.

If you are using the computer for the first time, enter the default password provided by your company.

3 Enter your new password twice—once in the Enter New Password field and again in the Re-Enter New Password field.

4 Choose OK to save your new password.

If You Cannot Remember Your Password

If your computer is equipped with security software and you forget your password, contact your supervisor or the help desk at your organization for instructions about regaining access to your system.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SECTION 4

If You Have a Radio Modem

Introduction

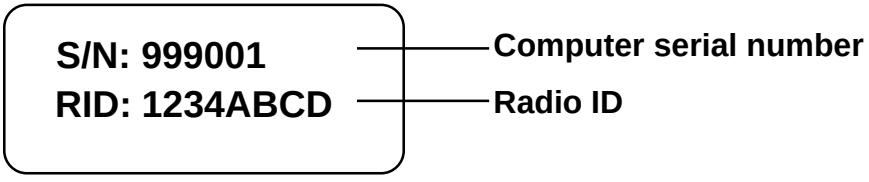
If your computer is equipped with a radio modem, you must register it with the appropriate network provider. There are also a few things to remember when using your radio.

Before You Start: Register!

Before using your radio modem you must sign up for service with a wireless network provider. When you register, you will need to furnish the network provider with your modem ID and the computer's serial number. This information is printed on the bottom of the computer.

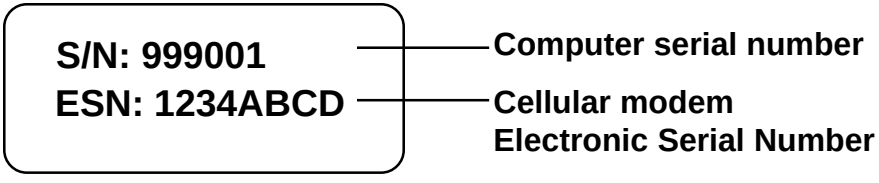
ARDIS or RAM

If you are registering with the ARDIS wireless network or the RAM Mobile Data MOBITEX network, your Radio Modem ID (RID) will be printed on a label as shown below.



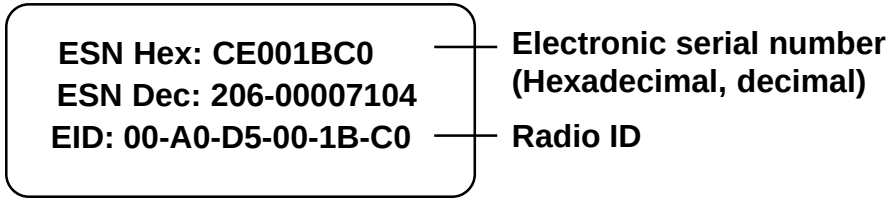
Cellular Data or Voice

If you are registering with a Cellular provider for data or voice service, your modem's Electronic Serial Number (ESN) will be printed on a label as shown below.



Cellular CDPD

If you are registering with a Cellular provider for CDPD service, your modem's Equipment Identifier (EID) will be printed on a label as shown below.



CAUTION Your modem generates radio frequency (RF) signals. Do not operate the radio modem before you have registered it with a network provider. The network will not accept a signal from an unregistered device. Unauthorized use of your radio modem may interfere with local business or government communications, resulting in fines or other legal action.

What Can I Do with My Radio Modem?

The radio modem in your mobile computer gives you the freedom to send and receive data without connecting to the wired telephone system or traditional wired networks. Common uses of radio communications include dispatching, personal messaging, and accessing remote host computer systems.

Cellular radio modems offer an additional capability to use your computer as a cellular phone. When you are not sending or receiving data, you can switch the modem into voice mode using your mobile computer's Speaker Phone program.

The exact capabilities of your radio modem are determined by the communications software you are using, and the services provided by your wireless network provider. Refer to the documentation provided

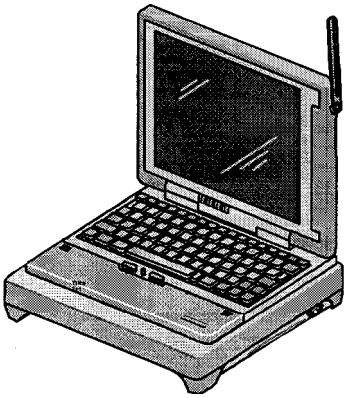
with your communications software for information on using the program with a radio network. Your network provider can answer questions regarding specific network features, host connectivity, registration options, billing, and geographic coverage areas. In some cases, your network provider can also assist you with selecting modem setup options for your communications software.

Using the Integrated Radio Modem

This section provides basic information on operating your mobile computer's integrated radio modem.

Antenna Positioning

The mobile computer radio antenna has maximum sensitivity in the full vertical upright position. For best radio reception, position the antenna as shown below. You can fold the antenna down while the radio is not being used.



While the display is open

CAUTION For RIM 901 Radios: While the radio is operating, its antenna must be at least 5 cm from all persons in order to comply with the FCC RF exposure limit. Radio operators must make sure their radio unit is in compliance with these FCC regulations. See Section 9 for important information about vehicle-mounted antennas.

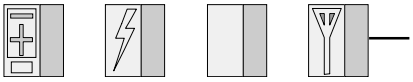
CAUTION For RIM 801 Radios: To comply with FCC RF exposure requirements this device must be operated with a minimum separation distance of 3 cm (1.2 inches) between the user/nearby person and the antenna, with the antenna in the vertical upright position. This is the intended position of the antenna when using the RIM 801D radio modem installed in the unit.

Serial Port Settings

The mobile computer's integrated radio modem is accessed through the COM4 serial port. When installing your communications software, make sure to configure the software to use COM4 with Hardware Flow Control (RTS/CTS) enabled.

Radio Indicator Light

Indicator lights located below the computer display report current mobile computer activities. The indicator light at the far right shows radio power status and message wake up activity.



There are three modes reported by the radio indicator light:

Off	On	Blinking
Radio power is off	Radio power is on	Indicates a message wake up has occurred. If a radio message is received while the computer is suspended (computer off/radio on), the computer automatically powers on to allow your radio application to store the message.

If you are using the Sierra Wireless SB300 Series (CDPD/Cellular) radio modem, the radio indicator light will blink while a Speaker Phone cellular voice call is in progress.

Enabling the Radio Modem

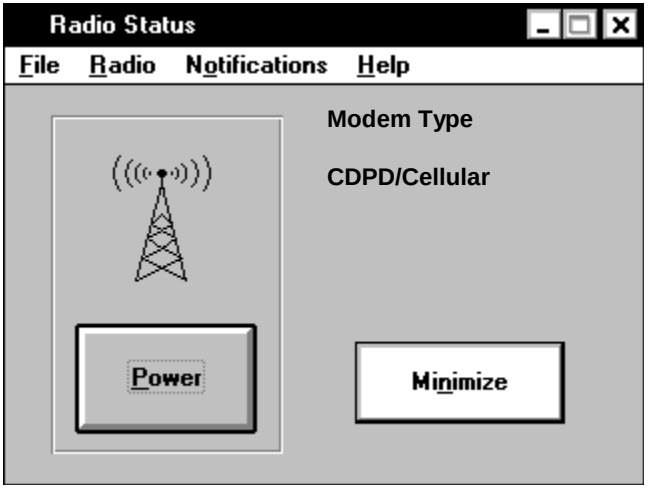
The integrated radio modem powers on automatically when your communications program requests use of the COM4 serial port. When you close the program, the radio automatically powers off.

You can use the Radio Status utility to manually disable the radio when you want to conserve battery power or store the computer. The Radio

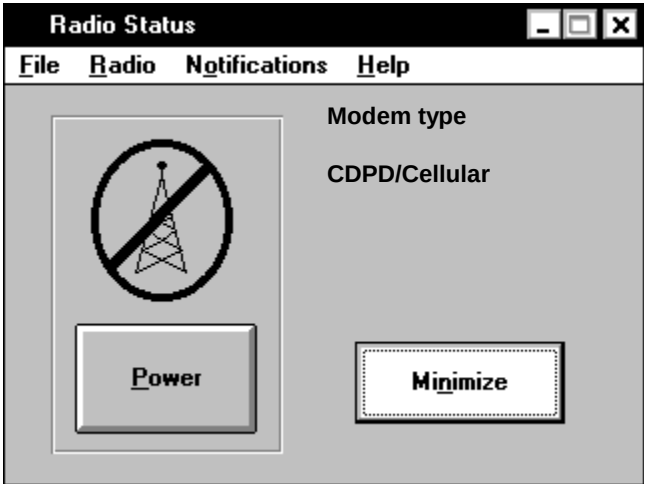
Status utility appears as a minimized icon on the Windows desktop. You can also run Radio Status by opening the Radio Tools folder. Double-click on the icon to activate Radio Status.

Clicking on the Radio Status Power button toggles power to the integrated radio modem.

Radio enabled



Radio disbled



TIP If the computer's battery becomes low, the system automatically disables the radio and extinguishes the radio indicator light. The system will automatically restore the radio hardware and indicator light after the low battery condition is corrected.

For MS-DOS Users

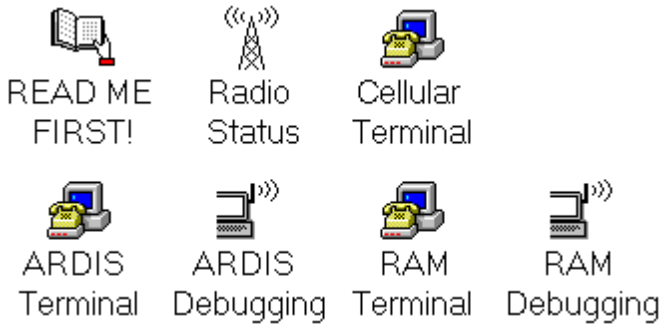
If you exit Windows and return to the MS-DOS prompt, use the RADIO command to enable or disable the radio modem.

Command	Action
RADIO ON	Enables the radio
RADIO OFF	Disables the radio
RADIO	Reports the current radio status

You can also enable or disable the radio using the DOS Radio Status resident utility. While running your radio application software, press CTRL+ALT+R to pop up the DOS Radio Status screen.

Factory Installed Radio Software

The mobile computer includes factory installed software that makes it easy to verify the operation of your integrated radio modem. These programs are located in the Radio Tools folder.



User Installable Cellular/CDPD Radio Software

If you are using the Sierra Wireless SB300 (CDPD/Cellular) radio modem, you will need to install the Sierra Wireless Watcher program.

To install Sierra Wireless Watcher software

1 Ensure that Dialup Networking and TCP/IP are installed on your system.

Refer to Windows 95 online Help for information about installing these components.

2 Select Run from the Start menu and enter the following: c:\sierra\watcher\setup.exe

3 When prompted to select a modem, choose the SB300 Series option.

4 When prompted for a communications port select COM4.

5 Select defaults for all other settings.

Additional Documentation

If you are developing a custom radio application for the mobile computer, you may need to order additional documentation describing the programming interface to your radio modem. The following is a list of documents available for purchase from Technical Publications, Itronix Corporation, P.O. Box 179, Spokane, WA 99210.

Motorola RPM Native Mode Interface R1.1
Itronix Part No. 98-0008-001

Native Control Language (NCL) interface specification for developing communication applications using the ARDIS networks.

Motorola Mobile Asynchronous Communications (MASC) Interface R1.0
Itronix Part No. 98-0009-001

MASC serial interface specification for developing communication applications using the Bell South Wireless network).

Sierra Wireless SB300 Series Modem User Guide
Itronix Part No. 98-0013-001 & 98-0012-001

AT command set and SLIP interface specification for use with the Sierra Wireless SB300 Series modem (CDPD/Cellular/PSTN networks).

Sierra Wireless PocketPlus Developer's Toolkit
Itronix Part No. 98-0005-001

Programming information for designing and developing TCP/IP, UDP, and Winsock applications on the CDPD network using the Sierra Wireless SB300 Series modem.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SECTION 5

Customizing Settings

Introduction

This section shows you how to access the System Configuration Utility (SCU) in order to customize settings for your own personal preference. It also covers viewing and changing IRQ settings.

> CAUTION Changing settings may cause the mobile computer to operate incorrectly. Change default settings only if you are instructed to do so.

Using the System Configuration Utility

The System Configuration Utility (SCU) allows you to change default settings for your hardware options and power management. The default settings should not be changed unless you are installing new hardware or adding memory. Otherwise, your existing hardware may not operate properly.

You can change the power management options based on personal preference. For example, the computer enters suspend mode after 2 minutes if it does not detect any keyboard or mouse activity. If you want to change this time-out setting, use SCU to make this change. Other power management options you may want to change include:

- When the system turns off the backlight (or MaxBright)
- When the hard disk is placed in standby mode
- How power is managed for the COM ports
- Whether the computer resumes when the radio modem detects a ring signal
- Whether or not power management is enabled

> Important Changing or disabling power management options can decrease battery life. Set these options at levels that will use the least amount of battery power.

Accessing the SCU

To access the System Configuration Utility

1 From the Start Menu, select Shut Down and then choose “Restart the computer.”

2 Read the text on the screen while the computer is restarting and press CTRL+ALT+S as soon as the following line appears:

“<CTRL+ALT+S> to enter System Configuration Utility.”

3 Follow the instructions at the bottom of the screen to move around in this utility and change the items you want to customize.

4 To exit the utility, press ALT+E (or select Exit from the menu), and then choose the appropriate option.

This utility provides additional options in the Exit menu:

“Default Settings” loads default settings defined by the system.

“Factory Defaults” loads the settings defined at the time of manufacture.

Note You may want to reset these parameters to their factory defaults and then customize the settings. First write down the existing settings in case you need to refer to them.

Setting the COM3 and COM4 IRQs

Some modem software will not work with standard communication (COM) port and Interrupt Request (IRQ) settings. Follow these guidelines for the mobile computer:

COM Port	IRQ Setting	Change to
COM3	IRQ 11	IRQ 4
COM4	IRQ 10	IRQ 3

The IRQ must be set the same in Windows 95 (Windows 98 and NT) and in the SCU. Follow the procedures below.

To view or change the IRQ settings in the SCU

1 From the Start Menu, select Shut Down and then choose "Restart the computer."

2 Read the text on the screen while the computer is restarting, and press CTRL+ALT+S as soon as the following line appears:

"<CTRL+ALT+S> to enter System Configuration Utility."

3 Select Components by pressing ALT+C.

4 Select COM Ports.

5 Press TAB to move to COM3 or COM4 settings.

6 Use the UP and DOWN ARROW keys to switch between IRQ values, and then press the SPACEBAR on the desired setting.

7 Choose OK to save the settings.

To view or change the Windows 95 IRQ settings

1 From the Start Menu, select Settings, Control Panel, and then choose System.

2 Select the Device Manager tab, and then choose the plus sign next to Ports.

3 Choose COM3 or COM4.

4 Select the Resources tab to view the current Interrupt Request setting.

5 Make sure the "Use Automatic Settings" box is not checked.

6 Select “Interrupt Request” listed under Resource type.

7 Choose the Change Setting button.

If a message appears indicating that this resource cannot be changed, select a different configuration type in the “Setting based on” box and go back to Step 6.

8 In the Value field, use the UP or DOWN ARROW to display valid values.

If the desired value does not appear, select a different configuration type in the “Setting based on” box and go back to Step 6.


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SECTION 6

Transferring Files

Introduction

You may need to transfer files to the mobile computer's hard drive such as copying a new program file to the computer so you can use a new version. There are several different ways you can transfer files to your computer:

- Using Direct Cable Connection between computers loaded with Windows 95 (see the instructions in this section).
- Using PC cards (see Section 8, "Using PC Cards").
- Using an external floppy or a CD-ROM (see Section 9, "Optional Equipment and Accessories").
- Using the internal landline modem (see Section 10, "Modems").

CAUTION In addition to the above methods, your company may have other ways of copying files to your computer. Contact your supervisor or your organization's help desk for information about the best way to do this.

Using Direct Cable Connection

Direct Cable Connection is a Microsoft product that comes with Windows 95. It allows you to establish a connection between two computers loaded with Windows 95 to gain access to the host computer's resources.

Windows 95 online Help provides detailed instructions about installing and using this software, as well as troubleshooting information for this process. Look up "Direct Cable Connection" and "Direct Cable Connection, Troubleshooting" in the Help index. The information on the following pages provides additional tips and guidelines to help make this process successful.

For additional information, check your local bookstore for books on Windows 95. Also, a large amount of information about Direct Cable Connection can be found on the Internet (search for "Direct Cable Connection").

Direct Cable Connection Requirements

Make sure the following requirements are met before installing and using Direct Cable Connection.

- Windows 95 must be installed on the host and the guest computer.
- A parallel or serial cable must be connected to both computers. See "Direct Cable Connection Tips" for information about obtaining a cable. If you need to make a cable, see "Wiring Specifications for Cables" later in this section.
- File sharing must be enabled on the host computer. For information about how to enable sharing, look up "enabling, file and printer sharing" in the Windows 95 online Help index.
- To share files, you share the folder they are in. A folder must be set up as "shared." For information about establishing shared folders, look up "shared folders, setting up" in the online Help index.

Computers Connected to a Network

If you are using Direct Cable Connection to share resources with a computer on a network, follow these guidelines.

- Give your guest computer a unique name to avoid problems connecting to the host computer.
  1. From the Start Menu, select Settings, Control Panel, and then choose Network.
  2. Select the Identification tab, and then enter the appropriate information.
  3. Choose OK, and then restart your computer if you are prompted to do so.
- If you are prompted to enter a network password, enter it correctly or you may not be able to see the shared resources on the host computer.

Direct Cable Connection Tips

Where do I find basic information about Direct Cable Connection?

- Windows 95 online Help provides several help topics about Direct Cable Connection. From the Start menu, select Help, and then use the index to search for "Direct Cable Connection."

I don't know how to start Direct Cable Connection

- To start Direct Cable Connection, select the Start button, Programs, Accessories, and then choose Direct Cable Connection. If you don't see Direct Cable Connection on the Accessories menu, see the procedure below. Note that Direct Cable Connection will only work if both machines are running Windows 95.

Direct Cable Connection is not on the Accessories menu

- If Direct Cable Connection is not on your Accessories menu, follow this procedure to add it:

  1 From the Start button, select Settings, and then choose Control Panel.

  2 Choose Add/Remove Programs, and then select the Window Setup tab.

  3 Highlight Communications in the component list, and then choose Details.

    Make sure that Dial-Up Networking and Direct Cable Connection are checked.

  4 Choose OK. Choose OK again.

    You may be prompted to insert the Windows 95 CD-ROM or disk(s).

When I try to start Direct Cable Connection, I get the error "Cannot find file C:\WINDOWS\DIRECTCC.EXE" (or one of its components)

- This indicates that Direct Cable Connection was not initially installed completely. First, uninstall both Dial-Up Networking and Direct Cable Connection as follows:

  1 From Control Panel, choose Add/Remove Programs.

  2 Select the Window Setup tab.

  3 Highlight Communications in the component list, and then choose Details.

    Make sure that Dial-Up Networking and Direct Cable Connection are NOT checked.

  4 Choose OK; choose OK again.

  5 Follow the instructions previously under "Direct Cable Connection is not on the Accessories menu."

Where do I get a Direct Parallel Cable?

- Direct Parallel Cables are available at computer stores. They are often referred to as one of the following:

  "Parallel Laplink Cable"
  "PC File Transfer Cable"
  "Direct Cable Connection Cable"
  "Direct Parallel Cable"
  "Interlink Cable"
  "Interlnk/Intersvr Cable"

  For information about obtaining a Direct Parallel Cable, contact your organizations' help desk.

I am having trouble making a connection

- Use the Windows 95 Direct Cable Connection Troubleshooting as the first step in resolving a problem. From the Start menu, choose Help, and then use the index to search for "Direct Cable Connection, Troubleshooting."
- Make sure that Windows 95 is installed on the host and the guest computer.
- Make sure that both computers are securely connected by a Direct Parallel Cable. A Direct Parallel Cable is not the same as a standard parallel cable.
- When starting Direct Cable Connection for the first time, you are prompted to select Host or Guest for the operating mode. Make sure that one PC is the Host (PC Workstation) and one is the Guest (mobile computer). If one of the computers is attached to a Local Area Network (LAN) and you want both computers to have access to LAN resources, set the computer attached to the LAN as the Host, and the other computer as the Guest.
- Make sure that the Host and Guest computers have unique computer names. On both computers, from the Start menu, select Settings, Control Panel, and then choose Network. Select the Identification tab, and then verify that the computer name is different for each computer. If necessary, change the computer name of the Guest computer to a name that is unique for the entire workgroup. The name is case sensitive.

- Verify that the Host and Guest computers have the same workgroup name. On both computers, from the Start menu, select Settings, Control Panel, and then choose Network. Select the Identification tab, and then verify that the workgroup name is the same for both computers. If not, set the Guest computer to have the same workgroup name as the Host computer. The name is case sensitive. For example, the name “WORKGROUP” is not the same as “Workgroup.”
- Make sure that you start Direct Cable Connection on the Host computer first, and then the Guest computer. After starting Direct Cable Connection on the Host, make sure that you choose the Listen button. After starting Direct Cable Connection on the Guest, make sure that you choose the Connect button.
- Check to make sure your printer/parallel port is configured for Direct Cable Connection communication. Both computers must have the same printer port configuration. In your BIOS setup, check the section regarding ports setup, usually in the chipset setup for newer motherboards. There will be a section that configures the printer/parallel port. There are two printer sections: one is IRQ and the other is type of communication. In the type, make sure it is in the ECP mode or EPP + ECP mode. Save and exit. The IRQs do not have to match.
- Make sure that you are able to see the “Verifying...” message when connecting. If you see this message, the Host and Guest computers are able to communicate over the cable. This means that your port and cable configurations are working.
- If you see this message but still cannot make a connection, make sure that both computers have the same protocols. On both computers, from the Start menu, select Settings, Control Panel, and then choose Network. Select the Configuration tab, and verify that both computers have the same network components installed. NetBEUI protocol needs to be installed for the Host gateway function to operate. If the protocols are not the same, select Help from the Start menu, and then use the index to search for “installing a network protocol” and follow the instructions.
- If you do not see the “Verifying...” message, this means the Host and Guest are not able to communicate over the cable. Something may be wrong with your cable. Verify that the cable is securely connected at each computer.

- Make sure that both computers have the Dial-Up Adapter installed. From the Start menu, select Settings, Control Panel, and then choose Add/Remove Programs. Select the Window Setup tab. Highlight Communications in the component list, and then choose Details. Make sure that Dial-Up Networking is checked. If not, check it, and then choose OK. Choose OK again. You may be prompted to insert the Windows 95 CD-ROM or disk(s).
- Verify that another application is not using Dial-up Adapter. You cannot use the Dial-up Adapter for a dial-up connection (such as Internet, FAX, modem) at the same time as a Direct Cable Connection. Disconnect from any dial-up connections before starting Direct Cable Connection.

I cannot access information on the Host computer or LAN

- Make sure Network Neighborhood is on the desktop of both computers. If it isn't, you can re-install it from your Windows 95 CD-ROM or disk(s).
- Make sure that resources on the Host computer are shared. Choose Network Neighborhood on the Host computer. Right click on the resource you want to share, and then select Sharing... from the pop-up menu. Select Shared As, and then choose OK. If Sharing... is not on the pop-up menu, that resource cannot be shared. You won't be able to access LAN resources unless they are shared (talk to your Network Administrator about this).

The shared folder doesn't have a drive letter assigned to it

- To map a drive letter to a shared folder, choose Network Neighborhood on the Guest computer. Right click on the folder you want to assign a drive letter to, and then select Map Network Drive from the pop-up menu. Enter the drive letter you want to assign.

Wiring Specifications for Cables

You can use a parallel or serial cable to transfer information; however, a parallel connection transfers data at a much higher rate than a serial connection.

Parallel Cables

To make a Direct Parallel Cable, make a cable with male DB-25 connectors at both ends and wire the cable as follows:

25 pin		25-pin	Description
pin 2	<———>	pin 15	N/A
pin 3	<———>	pin 13	N/A
pin 4	<———>	pin 12	N/A
pin 5	<———>	pin 10	N/A
pin 6	<———>	pin 11	N/A
pin 15	<———>	pin 2	N/A
pin 13	<———>	pin 3	N/A
pin 12	<———>	pin 4	N/A
pin 10	<———>	pin 5	N/A
pin 11	<———>	pin 6	N/A
pin 25	<———>	pin 25	Ground-Ground

Serial Cables

To make a Direct Serial Cable, make a cable with either a 9-pin or 25-pin female connector on both ends, and wire the cable as follows:

9 pin	25 pin		25 pin	9-pin	Description
pin 5	pin 7	<———>	pin 7	pin 5	Ground-Ground
pin 3	pin 2	<———>	pin 3	pin 2	Transmit-Receive
pin 7	pin 4	<———>	pin 5	pin 8	RTS-CTS
pin 6	pin 6	<———>	pin 20	pin 4	DSR-DTR
pin 2	pin 3	<———>	pin 2	pin 3	Receive-Transmit
pin 8	pin 5	<———>	pin 4	pin 7	CTS-RTS
pin 4	pin 20	<———>	pin 6	pin 6	DTR-DSR

SECTION 7

Managing Batteries and Power

Introduction

The mobile computer uses a Nickel Metal Hydride (NiMH) battery. This section provides some important information about these types of batteries and ways to extend their life.

Practical Battery Tips

Tip 1. Getting the most from your battery

- Your battery will last longer during the day if it is used and charged between 10°C and 30°C (50°F and 86°F).
- Charge the battery nightly where the temperature will remain around 20°C (68°F).
- Set up your system to automatically suspend (turn off) while the battery is charging.

  This can be done by enabling the "Suspend on AC Power" option under the Power, Suspend/Resume Control menu in the System Configuration Utility (SCU). This allows the system to automatically suspend while it is connected to external power.
- Use the Battery Maintenance application (located in the computer tools folder) to deep cycle discharge your battery. Deep cycling your battery reconditions it and eliminates memory effect. Follow these guidelines when deep cycling:
  - Deep cycle your battery when requested, which may be as often as 3 months, depending on usage.
  - For the best conditioning, deep cycle the battery where the temperature will remain around 20°C (68°F).
  - Leave the display tilted open and allow unrestricted airflow so excess heat can escape from the battery compartment and prevent the battery from overheating.
  - Consider running the deep cycle process over a weekend because it can take up to 40 hours to complete.

- The indicator light may read “fully charged,” but this does not necessarily guarantee sufficient capacity. Use the Battery Status application periodically to check your battery’s capacity, and then recondition it as needed.
- Even the best maintained batteries eventually need to be retired. They simply degrade from continuous use. Consider replacing your battery if you are not getting the usage you need from it after performing a deep cycle discharge.

Tip 2. Conserving power and extending battery life

- Turn off your computer by pressing FN+OFF whenever you are not using it.
- Make sure your system suspends automatically. PC Cards, custom applications, or modified system settings can affect this.
- Unplug peripherals and remove peripheral and network PC Cards when you are not using them.
- If you have a monochrome display, turn off the backlight when you do not need it.
- If you have a 10.4-inch color display, turn off MaxBright when you do not need it.
- Use the SCU to set power management options at levels that will consume the least amount of battery power (see Section 5, “Customizing Settings,” for more information).
- Use the AC adapter or vehicle adapter whenever possible.
- Avoid exposing batteries to extremely hot or cold temperatures for long periods.
- The mobile computer display does not require a screen saver. Using screen savers consumes valuable battery power and is discouraged unless the unit is connected to external power and an external monitor.
- Deep cycle discharge your battery when requested, which may be as often as 3 months, depending on usage by using the Battery Maintenance application.
- Store the battery within the recommended temperature range: 10°C to 30°C (50°F to 86°F).

Tip 3. If your battery is new or has not been used for several weeks

Follow these guidelines to deep cycle discharge the battery and condition it.

- Deep cycling the battery up to four times in succession may increase its capacity. You may want to do this over consecutive weekends since each deep cycle process can take up to 40 hours. After this initial conditioning, maintain battery capacity by deep cycling when requested, which may be as often as 3 months, depending on usage.
- For the best conditioning, deep cycle the battery where the temperature will remain around 20°C (68°F).

Tip 4. Determining when your battery has finished charging

- Under normal circumstances, your battery is finished charging when the external power indicator light stops blinking and remains solid.

  To prevent possible damage to the battery, the system will not allow a charge if the battery temperature is above 50°C (122°F) or below 5°C (41°F), such as in a closed, unattended vehicle. In this case, your battery may not be fully charged.
- If you charge your battery every night, it is finished charging when the Battery Status application shows a full gas gauge even though the external power indicator light may still be blinking.

  If your battery is new, or if you have not used it for a week or more, the gas gauge may be inaccurate because the battery naturally discharges over time. In this case, wait until the external power indicator light stops blinking and remains solid.

Tip 5. How your battery behaves in warm and cold conditions

In warm conditions

- When using a battery in warm conditions, the battery capacity will drain faster. In general, as the temperature rises, it is possible for the battery to drain 20 percent faster at 40°C (104°F) and 50 percent faster at 45°C (113°F).
- To prevent possible damage to the battery, the system will not allow a charge if the battery temperature is above 45°C (113°F), such as in a closed, unattended vehicle during the summer.
- If possible, charge the battery in a location with a moderate temperature of around 20°C (68°F). The battery won't last as long during the day if charged at higher temperatures because heat slows down the battery's chemical reactions. Also, if the battery becomes too hot while charging, the charge mode automatically switches from Fast Charge to Slow Charge. Slow Charge takes much longer to finish charging the battery.
- When charging the battery, leave the display tilted open and allow unrestricted airflow so excess heat can escape from the battery compartment and prevent the battery from overheating.

In cold conditions

- When using a battery in cold conditions, the battery capacity can drain 30 percent faster at 4°C (39°F) and 70 percent faster at -11°C (19°F).
- To prevent possible damage to the battery, the system will not allow a charge if the battery temperature is below 5°C (41°F), such as in a closed, unattended vehicle during the winter.
- If possible, charge the battery in a location with a moderate temperature of around 20°C (68°F). The battery won't last as long during the day if charged at lower temperatures because cold slows down the battery's chemical reactions.

Tip 6. Preventing data loss

How to prevent data loss when removing the battery or storing your computer

- You can lose data if you remove the battery while the computer is operating on battery power. To prevent this, turn off the unit by pressing FN+OFF before you remove the battery.
- The computer is equipped with enough internal backup power to maintain memory contents for about 5 minutes each time you exchange batteries. Be careful not to exceed this 5 minute limit when you replace the battery.
- If you plan to store your computer for more than 30 days, exit Windows to save data to the hard disk, and then press FN+OFF to turn off the computer. Remove the battery before storing the computer.

Tip 7. Returning batteries for service

- When shipping batteries, use non-static packing material to reduce the possibility of static discharge. Placing the battery in a non-static bag is ideal; however, wrapping the battery in paper or newspaper is also acceptable.
- Contact your supervisor or your organization's help desk for correct shipping procedures and information.

Tip 8. For more information

- The Battery Status and Battery Maintenance applications provide battery troubleshooting information. From the Help menu for each application, choose Contents (or Help Topics), and then choose Troubleshooting, followed by "Common Solutions to Common Problems."

Conserving Power and Extending Battery Life

Follow these guidelines to get the most use from your batteries and extend their life.

- Turn off your computer by pressing FN+OFF whenever you are not using it.
- Make sure your system suspends automatically. PC Cards, custom applications, or modified system settings can affect this.
- Unplug peripherals and remove peripheral and network PC Cards when you are not using them.
- If you have a monochrome display, turn off the backlight when you do not need it.
- If you have a 10.4-inch color display, turn off MaxBright when you do not need it.
- Use the SCU to set power management options at levels that will consume the least amount of battery power (see Section 5, “Customizing Settings,” for more information).
- Use the AC adapter or vehicle adapter whenever possible.
- Avoid exposing batteries to extremely hot or cold temperatures for long periods.
- The mobile computer display does not require a screen saver. Using screen savers consumes valuable battery power and is discouraged unless the unit is connected to external power and an external monitor.
- Deep cycle discharge your battery when requested, which may be as often as 3 months, depending on usage by using the Battery Maintenance application.
- If you plan to store the computer for more than 30 days, remove the battery.
- Store the battery within the recommended temperature range: 10°C to 30°C (50°F to 86°F).

Low Battery Warnings

When the battery becomes low, the mobile computer beeps and the battery indicator light blinks. If you are running Windows, a warning message also appears on the screen periodically. Unless you connect external power or replace the battery within a reasonable time, the system turns off the computer automatically. If the battery voltage becomes very low, the computer shuts off and you cannot turn it back on until you correct the low battery condition.

Power-saving Features

Suspend

Suspend mode turns off the system if there is no activity for a period of time. The computer also enters suspend mode if the battery capacity becomes critically low and external power is not connected or the battery is not replaced.

> Note Some systems do not automatically enter suspend mode when they are connected to external power. Systems that can suspend on external power have a user-defined option in the System Configuration Utility (SCU) that enables or disables this feature. See Section 5 for information about accessing the SCU.

By default, the computer enters suspend mode after two minutes of inactivity. This "time-out" setting can be changed in the System Configuration Utility (see Section 5, "Customizing Settings"). You can place the computer in suspend mode manually by pressing FN+OFF. Files and data are retained and you can resume where you left off by pressing FN+ON.

Hard Disk Standby

To conserve power, the hard disk switches to standby mode after a period of inactivity and resumes when it detects activity.

Display

To conserve power, the system turns off the display when the computer enters suspend mode. It automatically turns on when the computer is turned back on.

Backlight

The display backlight can be turned on to make information on the screen easier to read in low-light situations. To conserve power on the monochrome displays only the system automatically turns off the backlight after a period of inactivity. You must manually turn the backlight on by pressing FN+F1 when you resume. You can change the time-out setting for the backlight in the System Configuration Utility (SCU). See Section 5, “Customizing Settings,” for more information.

On a color display, the backlight is always on whenever the computer is running. See “About the Display Backlight” below.

About the Display Backlight

10.4-inch color

- Backlight is always on when the computer is runnning
- FN+F1 toggles MaxBright on/off
- FN+F2 dims
- FN+F3 brightens
- FN+F2 and FN+F3 are active only when MaxBright is off

10-inch monochrome

- FN+F1 toggles the backlight on/off
- FN+F2 dims
- FN+F3 brightens

MaxBright

MaxBright is a feature available on 10.4-inch color display that intensifies the backlight to its maximum brightness. Pressing FN+F1 toggles MaxBright on and off. The system automatically turns off MaxBright after a period of inactivity, and this time-out setting can be changed in the System Configuration Utility (SCU). See Section 5, "Customizing Settings," for information about accessing the SCU.

Getting Battery Information

Battery Status

The Battery Status application provided with your system monitors the condition of the battery installed in the computer. This application allows you to check information such as the current capacity and temperature of the battery. Battery Status runs automatically when you run Windows. To learn more about this program, refer to its online help.

To open this program, choose the Battery Status icon from the Taskbar.

Battery Maintenance

The Battery Maintenance application allows you to perform a deep cycle discharge of the battery and obtain information about the last time this activity was completed. For additional information, see "Deep Cycle Discharging" later in this section.

To learn more about this program, refer to its online help.

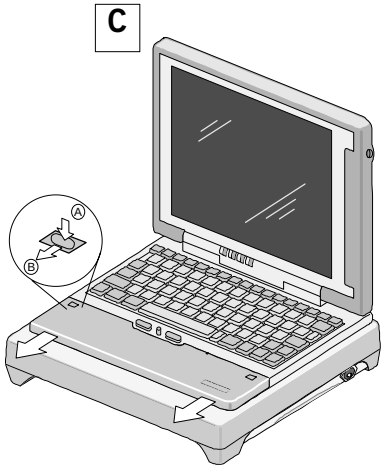
Removing and Replacing Batteries

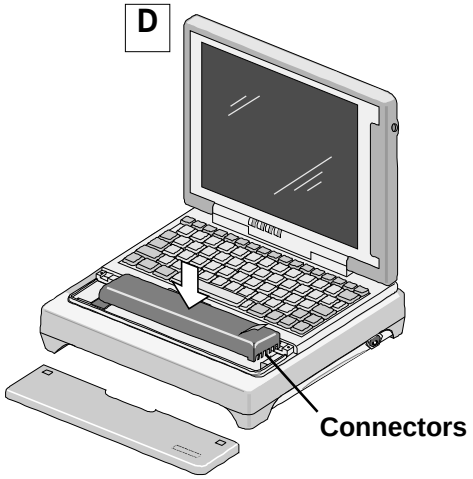
Replace the battery in your computer with a new one if your existing battery does not hold a charge. If your battery is drained, replace it with a charged one. When operating on battery power, the computer is equipped with enough internal backup power to maintain memory contents for about 5 minutes each time you exchange batteries.

> CAUTION You can lose data if you remove the battery while the mobile computer is operating on battery power. Turn off the computer by pressing FN+OFF before you remove the battery. You can also lose data if the battery is removed from the unit for more than 5 minutes.

To remove and replace the battery

1. Turn off the computer by pressing FN+OFF, and then locate the battery door in front of the keyboard.
2. Push the two battery door latches down to unlatch the door and slide it away from the unit (C).
3. Grasp the ribbon and pull up on the battery to remove it.
4. Align the battery connectors and place a new battery in the computer (D).
5. Replace the battery door and make sure it is securely latched.





Charging Batteries

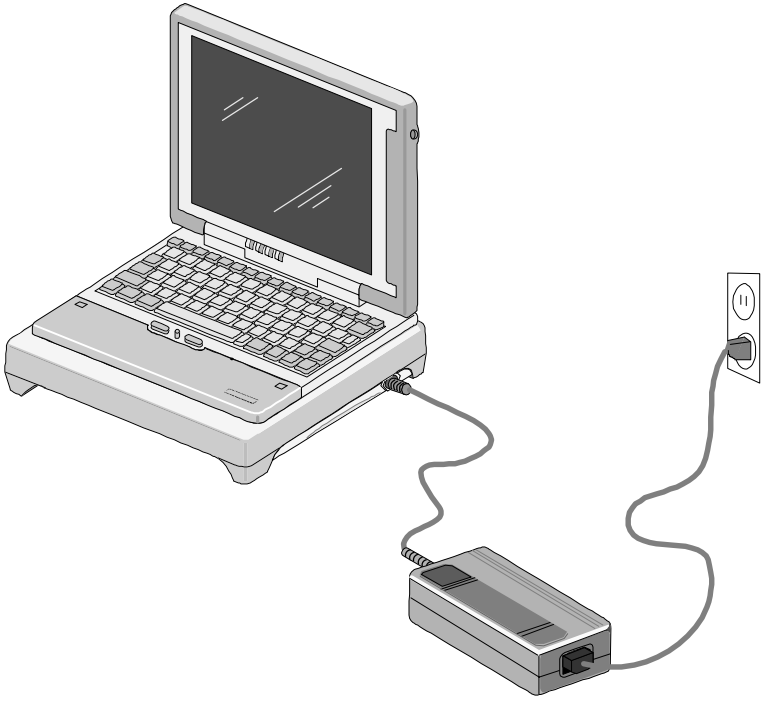
To maintain power and prevent data loss from a low battery, charge the battery daily. You can use several external power or charging devices approved for use with the mobile computer. The AC adapter comes with your computer, but you also can use other optional devices such as the vehicle adapter, the stand alone charger, or the vehicle cradle. See Section 9, "Optional Equipment and Accessories," for more information about this equipment.

To charge the battery using the AC adapter

1 Connect the appropriate end of the AC adapter to an AC wall outlet.

2 Connect the other end to the computer's power port on the side of the unit.

3 Install the battery in your computer and make sure the battery door is latched and secured.



Leave the display tilted open and allow unrestricted airflow while the battery is charging. This allows excess heat to escape from the battery compartment and helps prevent the battery from overheating.

The battery starts fast charging automatically, and the external power indicator light blinks while the battery is charging. At moderate temperatures, around 70 degrees Fahrenheit, the battery will complete charging in 3 to 4 hours. Under extremely cold or hot temperatures, however, the battery can take up to 16 hours to fully charge.

Deep Cycle Discharging

Use the mobile computer's Battery Maintenance application to perform a deep cycle discharge. To run this application, double-click the Battery Maintenance icon in the Mobile Computer Tools folder. To learn more about this program, refer to its online help.

Nickel Metal Hydride (NiMH) batteries can develop "memory effect" when they are partially discharged and recharged repetitively without a full discharge. Repeatedly charging the batteries this way will eventually decrease battery capacity and performance. To recondition the batteries and eliminate battery charge memory effect, you should deep cycle discharge batteries when requested, which may be as often as 3 months, depending on usage.

If your battery is new or has not been used for several weeks, deep cycling it up to four times in succession may increase its capacity. You may want to do this over consecutive weekends since each deep cycle process can take up to 40 hours. After this initial conditioning, maintain battery capacity by deep cycling at the recommended frequency.

Battery Storage and Care

Follow these guidelines to maintain performance of NiMH batteries.

- Avoid exposing batteries to extremely hot or cold temperatures for long periods. To prevent possible damage to the battery, the mobile computer does not allow the battery to charge if the internal temperature of the battery gets too low (< 5°C or < 41°F) or too high (> 50°C or > 122°F).
- Charge the batteries nightly where the temperature will remain around 20°C (68°F).
- Deep cycle discharge your battery when requested, which may be as often as 3 months, depending on usage.
- Store the batteries within the recommended temperature range: 10°C to 30°C (50°F to 86°F).
- After storage, or periods during which the battery has not been used, deep cycling it up to four times in succession may increase its capacity. You may want to do this over consecutive weekends since each deep cycle process can take up to 40 hours. After this initial conditioning, maintain battery capacity by deep cycling at the recommended frequency.

Disposing of Batteries

WARNING The mobile computer is powered by a rechargeable Nickel Metal Hydride (NiMH) battery. Disposing of the battery improperly can cause serious personal injury. Do not crush the battery or place it in a fire. The battery is recyclable and, under various state and local laws, it may be illegal to dispose of it into the municipal waste stream. Check with your local solid-waste officials for details on recycling options or proper disposal.

SECTION 8

Using PC Cards

Introduction

A PC card is a self-contained, credit card-sized device that can be used to store programs, data, or to expand the capabilities of your computer. The mobile computer accepts Type I, Type II, and Type III PC cards.

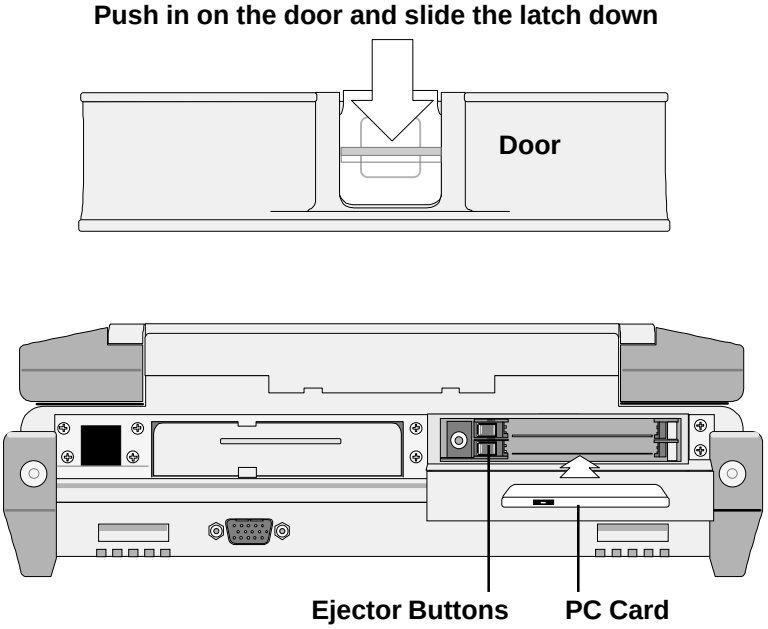
Inserting and Removing a PC Card

The PC card sockets are located on the back of the computer.

> CAUTION The internal components of the mobile computer will be damaged if exposed to contaminants. When the PC card door is open, shield the unit from all contaminants such as liquids, rain, snow, and dust.

To insert a PC card

1 Provide a suitable environment for the computer, and then open the PC card door by pushing in on the door and sliding the latch down.



> Important Make sure the card is positioned correctly when you insert it. Attempting to insert the card upside down can damage the ejector button, and this may cause the button to malfunction when you remove the card.

2 Position the card and carefully slide it into the card socket until it is firmly seated.

3 Close the PC card door and push the latch up to secure it.

To remove a PC card

1 Before you remove the card, select the PC card icon in the system "tray" area of the screen (near the clock in the lower right corner), and choose "Stop [*card name*] card."

2 Provide a suitable environment for the computer, and then open the PC card door by pushing in on the door and sliding the latch down.

3 Press the ejector button.

4 Carefully slide the card out of the socket.

> Tip Use one finger to press down lightly on top of the card, and then slide it out. If the ejector button malfunctions when you press it, release the button and press it again.

Transferring Files Using PC Cards

To transfer files using PC cards

This method of transferring files requires that the computer you are exchanging files with is also equipped with a PC card socket.

1 Insert a PC memory or ATA card into the PC card socket of the source computer.

2 Copy the file(s) you want to transfer from the hard disk to the PC card.

The drive letter assigned to the card depends on the hardware configuration of the computer.

3 Remove the card and insert it into the card socket of the destination computer.

4 Copy the file(s) from the PC card to the hard disk of the destination computer.

Using Bootable PC Cards

The mobile computer normally boots from the internal hard disk (drive C); however, it might be necessary to boot from an alternate boot device if the computer's hard disk becomes corrupted or fails, or if you want to boot another operating system.

You can boot from an approved external floppy disk drive (see Section 9 for more information), or you can use an SRAM PC Card. Boot precedence is first from the SRAM PC card (drive C), then the external floppy (drive A, removable), and then the internal hard drive.

> Important Do not use FN+OFF to suspend the computer if you have booted from a PC Card rather than the computer's internal hard disk. When you have finished using the card, remove it from the computer and then press CTRL+ALT+DEL to restart the system.

SECTION 9

Optional Equipment and Accessories

Connecting a Printer

You can connect a printer to the mobile computer with the parallel or serial cable supplied with your printer. This allows you to print documents that are stored in the computer. See your printer's user's manual for more information.

To connect a printer to the parallel port

1 Open the I/O dust cover on the back of the computer and connect the male end of the parallel cable to the 25-pin connector (the larger of the two connectors).

This connector is referred to as LPT1.

2 Connect the other end of the cable to your printer.

3 Follow the instructions for your application to use the printer.

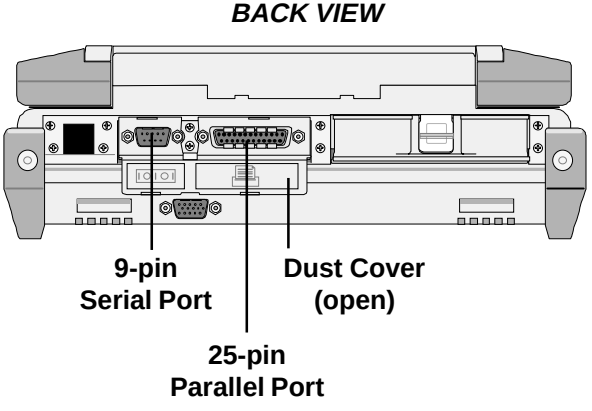
To connect a printer to the serial port

1 Open the I/O dust cover on the back of the computer and connect the male end of the parallel cable to the 9-pin connector (the smaller of the two connectors).

This connector is referred to as COM1.

2 Connect the other end of the cable to your printer.

3 Follow the instructions for your application to use the printer.



Connecting an External Monitor

The computer has a “Display Selection” feature that allows you to switch between the computer display, an external monitor, or both as the active display.

To use an external monitor, first connect the monitor cable to the 15-pin video port on the back of the computer and then follow the procedure below.

To select a display

1 From the Desktop, double click the Display Select icon.

2 Select one of these options:

- “LCD Panel” to use the computer display
- “Monitor / LCD” to use both displays

3 Choose OK.

Connecting an External Mouse

You can connect an external mouse to the serial port of the computer. First select the appropriate mouse manufacturer and model as described below, and then enable the communication port by making changes in the System Configuration Utility (SCU).

To connect an external mouse

1 Connect the mouse to the 9-pin serial port on the back of the computer.

2 From the Start Menu, select Control Panel, Settings, and then choose Mouse.

3 Select the General tab, and then choose Change.

4 Make sure “Show all devices” is enabled.

5 Under "Manufacturers," select the appropriate mouse you intend to use.

6 Under "Model," select the appropriate model.

7 Choose OK.

8 Close all windows and enable the communication port.

PC Card External Floppy Disk Drive

An external floppy drive can be connected to the computer using the PC Card socket. You can use the external floppy to transfer files to the mobile computer; use the drive letters that correspond to your hardware configuration.

Follow the procedures in this section to connect the floppy drive to the computer.

PRECAUTIONS

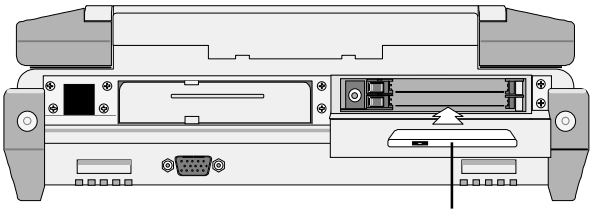
- Using an unapproved bootable external floppy disk drive may cause errors or may damage the computer. Use only external floppy disk drives approved for use with the mobile computer.
- Do not open the computer's battery door when you are using an external floppy disk drive.

To connect an external floppy disk drive

1 Open the PC Card door on the back of the computer and insert the PC Card connector into the socket.

2 Connect the other end of the cable to your external floppy drive.

3 Turn on the floppy disk drive.



Booting from a PC Card External Floppy

The mobile computer normally boots from the internal hard disk; however, it might be necessary to boot from an alternate boot device if the computer's hard disk becomes corrupted or fails, or if you want to boot another operating system. One option is to use a bootable external floppy disk drive.

To boot from an external floppy disk drive

1 If you are running Windows, Exit Windows (from the Start Menu select Shut Down, and then choose "Shut down the computer").

2 Separate the PC Card connector from the cable by gently squeezing the two small clips on each side of the connector.

3 Insert the PC Card (disconnected from the cable) into the socket.

4 Restart the computer by pressing FN+ON.

5 Follow the instructions on the screen to reconnect the cable to the PC Card, insert a diskette, and boot the computer.

Using an External CD-ROM

You can use an external CD-ROM drive to copy files to the mobile computer or access information from a CD. Before you connect an external CD-ROM to the computer, check these things:

- Make sure you are using an external CD-ROM that is approved for use with the mobile computer.
- If necessary, follow the instructions provided with the CD-ROM to install the correct device drivers on the computer.

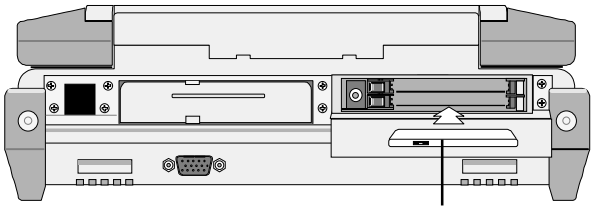
After following the appropriate setup procedures, you can access the external CD-ROM by using Windows Explorer or My Computer. Use the drive letter that corresponds to your hardware configuration.

To connect an external CD-ROM

1 Connect the CD-ROM cable to your CD-ROM drive.

2 Open the PC Card door on the back of the computer and insert the PC Card connector into the socket.

3 Turn on the CD-ROM drive.



Stand Alone Charger

The stand alone charger is an optional charging device used to charge a Nickel Metal Hydride (NiMH) battery. This charger allows you to charge an additional battery for the mobile computer.

> CAUTION There are no user-replaceable parts within the stand alone charger, so do not open the charger case. The stand alone charger is internally protected. It resets automatically if there is a power fault.

The operating temperature for this device is +10ºC to +40ºC (+50ºF to +104ºF). Operating the stand alone charger outside of this temperature range may damage the battery.

To charge a battery

1 Insert the appropriate end of the power cord into the power port on the stand alone charger; insert the other end of the power cord into an electrical wall outlet.

2 Align the connectors and place the battery onto the charger.

The charger automatically begins fast charging the battery. At moderate temperatures, around 21°C (70ºF), the battery will be fully charged in approximately three to four hours. Under extremely cold or hot temperatures, however, the battery can take up to 16 hours to charge.

Indicator Lights

Green	Red	Description
On	On	Power up. No battery installed.
Blinking	Off	Charging battery.
On	Off	Charging complete.
On	Blinking	Battery problem. Use Battery Status to check the condition of the battery.
Blinking	Blinking	Charger problem.

Vehicle Adapter

The Vehicle Adapter is an optional device that supplies power from the vehicle battery to operate the computer and charge the battery installed in the unit. It typically connects to the vehicle battery using the cigarette lighter socket.

> CAUTION
>
> There are no user-replaceable parts within the vehicle adapter, so do not open the adapter case. The adapter is internally protected. It resets automatically if there is a power fault.
>
> The operating temperature for this device is -20°C to +60°C (-4°F to +140°F). Operating the vehicle adapter outside of this temperature range may damage the battery.

To prevent possible damage to the battery, the system will not allow the battery to charge at extreme temperatures. Be aware of the following charging characteristics, especially if the computer is left unattended in a closed vehicle.

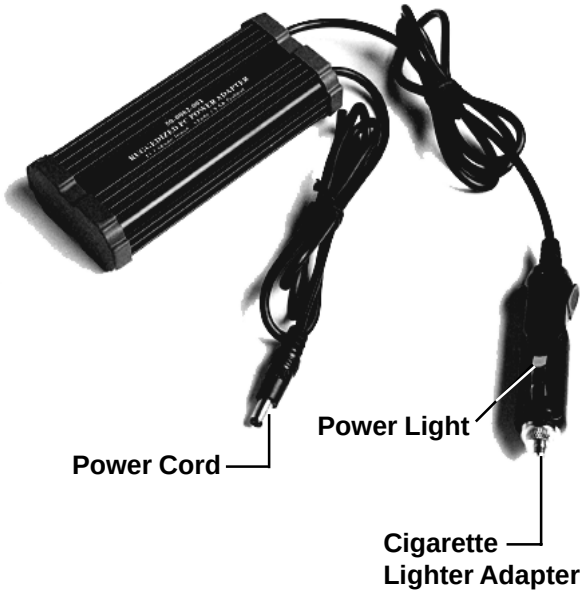
Temperature	Charging Activity
<5°C (<41°F)	Battery will not charge
>45°C (>113°F)	Slow charge mode
>50°C (>122°F)	Maintenance charge

To connect the vehicle adapter

1 Insert the vehicle adapter's power cord into the power port on the side of the computer.

2 Insert the cigarette lighter adapter into the vehicle's cigarette lighter socket, turning it slightly to make a good connection.

The power light illuminates to indicate that current is reaching the vehicle adapter. When you connect the vehicle adapter, it automatically begins fast charging the computer's battery. At moderate temperatures, around 21°C (70°F), the battery will be fully charged in approximately three hours. Under extremely cold or hot temperatures, however, it will take longer to charge the battery (up to 16 hours).



Important

- If you charge your battery daily, rely on the gas gauge reading to determine battery capacity. The gas gauge displayed by Battery Status may show that the battery is full, but the external power indicator light may still be blinking. This typically occurs if the charge mode switched from Fast to Slow because the battery became too hot. The charging process is trying to put a little more capacity into the battery; however, external power can be removed since the battery is virtually full.
- If your battery is new or has not been used for several weeks, rely on the indicator light to determine when the battery is fully charged. The gas gauge is unreliable in these cases; it may read 100 percent, but the actual capacity is only 10 percent.

Vehicle Cradle

The vehicle cradle is a vehicle-based docking station designed to safely secure the computer in the vehicle. A standard key lock located on the back of the cradle locks the computer onto the cradle for security purposes. You can use the vehicle cradle to:

- Charge batteries
- Communicate with other devices
- Access information from a CD-ROM

FRONT VIEW

BACK VIEW

PRECAUTIONS

- There are no user-replaceable parts within the vehicle cradle, so do not open the cradle case. The vehicle cradle is internally protected. It resets automatically if there is a power fault.
- Do not use the vehicle cradle to charge the computer battery overnight. Turn off the vehicle cradle at the end of each work day to prevent draining the voltage in your vehicle's battery below starting levels.

Important The power button works differently on the standard Vehicle Cradle and the CD-ROM Vehicle Cradle:

- On the standard cradle, pressing the power button turns on the unit, and the power light means current is reaching the cradle.
- The CD-ROM model powers on as soon as external power is connected. The power button on the CD-ROM model only turns the CD-ROM on and off, and the power light means current is reaching the CD-ROM.

Charging Batteries

The vehicle cradle is designed to charge the computer's battery with voltage from the vehicle battery while you are traveling between customer jobs. Follow the procedure below to charge a Nickel Metal Hydride (NiMH) battery.

To charge a battery installed in the computer

1 Make sure the computer is powered off.

2 Place the computer onto the vehicle cradle, making sure it is securely latched.

CD-ROM vehicle cradles automatically power on.

3 If you have a model with no CD-ROM, turn on the vehicle cradle by pressing the power button.

The vehicle cradle automatically begins fast charging the battery.

Important

- A temperature of -20ºC to +60ºC (-4ºF to +140ºF) is recommended when charging batteries with the vehicle cradle. Batteries may not charge successfully outside this temperature range.
- If you charge your battery daily, rely on the gas gauge reading to determine battery capacity. The gas gauge displayed by Battery Status may show that the battery is full, but the external power indicator light may still be blinking. This typically occurs if the charge mode switched from Fast to Slow because the battery became too hot. The charging process is trying to put a little more capacity into the battery; however, external power can be removed since the battery is virtually full.
- If your battery is new or has not been used for several weeks, rely on the indicator light to determine when the battery is fully charged. The gas gauge is unreliable in these cases; it may read 100 percent, but the actual capacity is only 10 percent.

Communicating with Other Devices

The vehicle cradle is designed with a standard serial port so you can connect external devices such as a printer or modem. Specify COM2 when you select the communications port in your application. Connect the external device to the serial port on the back of the cradle, and then place the mobile computer onto the vehicle cradle. You can install or remove the computer from the vehicle cradle without connecting or disconnecting a printer or modem cable from the computer.

External Antennas

An external RF antenna also can be connected to the cradle using the TNC RF connector on the back. FCC regulations require that users of vehicle-mounted antennas must use only antennas authorized for use with the mobile computer in order to meet FCC RF exposure limits. Please contact your organizations's help desk for a list of approved vehicle-mounted antennas. For mounting installation and/or mounting

instructions for these types of antennas, see the instructions that accompany each antenna.

RF Antenna Placement

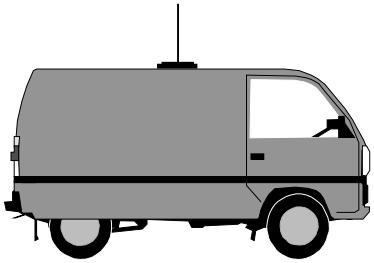
> WARNING Improper installation and/or operating configurations of permanent and magnetic vehicle-mounted antennas may cause FCC RF exposure limits to be exceeded. Vehicle-mounted antennas must be placed at least 20 cm from operators and bystanders.

Placement of a vehicle-mounted antenna

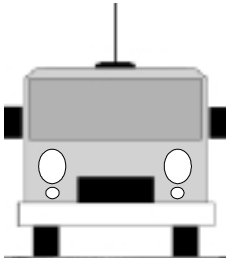
1 Measure and identify an area 20 cm (8 inches) in from the edges of the vehicle roof.

2 Place the antenna within that area.

To maximize RF performance, position the antenna in the center of the vehicle roof.



Side View



Front View

Using the CD-ROM

The Vehicle Cradle has an optional CD-ROM feature. You can use the CD-ROM to copy files to the mobile computer or access information from a CD. Follow the procedure below if your cradle is equipped with a CD-ROM.

> Important The power button works differently on the standard Vehicle Cradle and the CD-ROM Vehicle Cradle:
>
> - On the standard cradle, pressing the power button turns on the unit, and the power light means current is reaching the cradle.
> - The CD-ROM model powers on as soon as external power is connected. The power button on the CD-ROM model only turns the CD-ROM on and off, and the power light means current is reaching the CD-ROM.

To use the CD-ROM with the mobile computer

1 Place the computer on to the vehicle cradle, making sure it is securely latched.

2 Connect the appropriate end of the CD-ROM cable to the parallel port on the back of the computer and the other end to the CD-ROM port on the back of the vehicle cradle.

The cable connectors are keyed to be inserted only one way.

3 Turn on the CD-ROM by pressing the power button.

4 Restart the mobile computer by pressing CTRL+ALT+DEL.

5 Insert a CD into the CD slot on the cradle.

6 You can access the CD-ROM by using an application or using your operating system's file manager. Choose the CD icon or the appropriate drive assigned to the CD-ROM, depending on the hardware configuration for your computer.

> Important If your CD-ROM does not operate after following these instructions, additional drivers may need to be installed on your system. Contact your organization's help desk for assistance.

CAUTION Turn off the vehicle cradle at the end of each work day to prevent draining the voltage in your vehicle's battery below starting levels.

Cleaning or Replacing Cradle Contact Pins

The contact pins on the vehicle cradle are exposed to contamination and stress when the computer is installed and removed from the cradle during normal daily operation. The pins were designed to be cleaned or replaced as required.

If the pins become dirty, they can be removed and cleaned with an electrical contact cleaner or replaced. The power and ground pins are pins 3 and 8 respectively. When charging problems are encountered and replacement pins are not available, other pins in the contact assembly can be used to field fix the unit until replacement parts are available.

Note Pin 8 on RF units is an RF connector and is not user replaceable. Contact your support desk for information about replacing this RF connector.

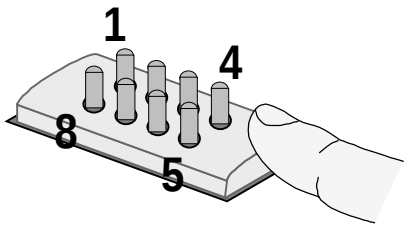
To clean or replace the cradle contact pins

1 Hold down the protective plastic cover.

2 Grasp a pin and pull straight up, being careful not to bend it.

3 Clean the pin with electrical contact cleaner and reinstall it into the cradle contact assembly.

If a pin is bent or cannot be cleaned, contact your support desk to obtain a replacement pin.



Surge Protection

A large number of computer and high technology equipment damage is directly related to AC power and telephone line problems. These problems can include surges, spikes, noise, interference, and weather-related problems, which in turn can cause glitches, hang-ups, crashes, performance slow downs, and down time with computer equipment. The market is flooded with hundreds of AC power line surge suppressors advertising high performance surge protection; only a few of them actually provide adequate protection.

This section provides guidelines for selecting a quality surge suppressor to be used with your mobile computer, and it helps identify a few sources for products with acceptable performance.

Selecting the Right Surge Protection

Consider the level of quality you need when selecting a surge suppressor. This depends on factors such as surge environment, the type of equipment to be protected, and the quality of the electrical wiring and service.

Surge Environment

Surge environment refers to the damage potential from electrical surges in a particular geographical area. A high quality suppressor should be used if there is frequent lightening activity in the area and the location service is fed by overhead utility poles. An example of a high surge environment would be Florida; a low surge environment might be New York.

Type of Equipment to be Protected

If the computer is equipped with a modem, the modem should also be surge protected. Protecting the power line without protecting the modem line provides only partial protection.

Quality of Electrical Wiring and Service

Wiring should be up to current NEC standards and have verified good AC grounds. It is important that your computer system be plugged into a grounded AC outlet when charging and that all peripherals connected to your system reference the same AC ground.

Selecting the Right Equipment

There are a number of companies that sell quality surge suppressors such as Sutton Designs, APC, and Panamax. When you are looking for a surge suppressor, consider these things.

- Expect to pay at least $50 for a good quality surge suppressor.
- The surge suppressor should be a UL 1449, 497, and 1283 listed for surge suppression, modem surge protection, and RFI/EMI noise filtering respectively.
- The surge suppressor should have diagnostic LEDs that verify good AC ground, proper wiring, and proper surge operation. Lighted on/off switches are not recommended since they can produce electrical noise.
- The Joule ratings should be a minimum of 480 Joules for the AC surge circuit.
- The Joule ratings should be a minimum of 240 Joules for the modem.
- The modem surge circuit should present low capacitance to the modem line or it will slow the transmission rate. Capacitance should be specified at less than 50 picofarads.
- Quality surge suppressor manufacturers generally offer a lifetime warranty.
- Consider obtaining a protected equipment coverage policy which insures the equipment in the event of surge damage.
- The devices that will be attached to the computer also need to be surge protected.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SECTION 10

Modems

Introduction

The mobile computer may be equipped with one of several modems. A modem allows the computer to exchange data over a phone line with another computer that is also equipped with a modem.

See Section 5, "Customizing Settings," for correct IRQ and communication port settings.

Which Modem Do I Have?

To verify which modem is installed in your unit, locate the "Config" string label on the bottom of the computer, check the seventh digit in this string, and then refer to the following table.

For more detailed information, see the *AT Command Reference Manual*.

If the 7th "Config" string digit is . . .	This modem is installed
A	Rockwell 56K baud modem
Z	No modem installed

Using the Internal Landline Modem

To use the internal landline modem

1 Plug one end of an RJ-11 cable into the RJ-11 connector on the back of the computer.

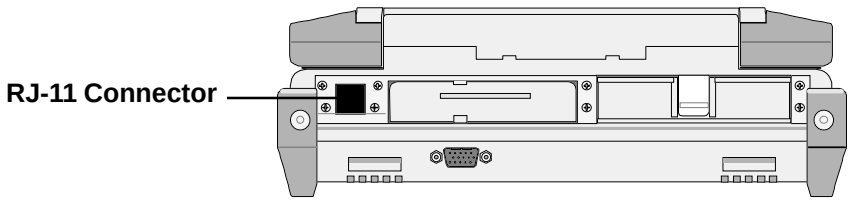
2 Plug the other end of the RJ-11 cable into a telephone jack.

Make sure the COM3 IRQ is set correctly. Failure to do so may cause some communication programs to lock up. See Section 5, “Customizing Settings.”

3 Set up the HyperTerminal application, or another application, to use the communications port COM3.

4 If necessary, set up other communication parameters in your application to match the parameters set for the modem you are talking to.

5 Use the HyperTerminal application, or another application, to establish a connection to another computer.



Transferring Files

To transfer files using the internal landline modem

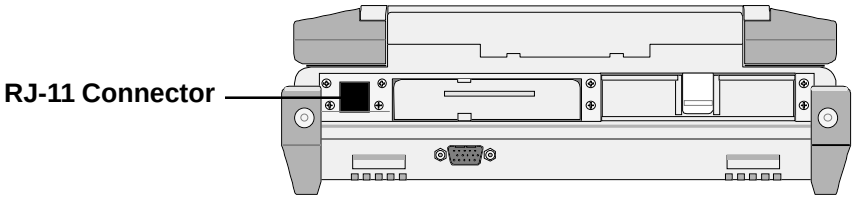
1 Insert one end of an RJ-11 cable into the RJ-11 connector on the back of the computer.

2 Insert the other end of the RJ-11 cable into a telephone jack.

3 Set up the HyperTerminal application, or another application, to use the communications port COM3.

4 If necessary, set up other communication parameters in the application to match the parameters set for the external modem.

5 Use the HyperTerminal application, or another application, to establish a connection to another computer.



SECTION 11

Maintenance and Storage

Introduction

The mobile computer is ruggedized and weather resistant. Handle it with the normal care required by any sophisticated electronic equipment, and the computer will provide reliable service even under harsh field conditions.

Follow the guidelines below to care for your unit.

If You Have a Touch Screen

CAUTION

- Always use an approved stylus.
- Never use sharp, hard, or abrasive implements on the touch screen such as ball point pens, pencils, or keys. They could damage the screen.
- To clean the touch screen panel, apply a household glass cleaner to a soft, clean, dry cloth and wipe the screen.

Hard Drive Care and Handling

There are two hard drive options for the mobile computer: a shock-mounted 2.5-inch hard drive and a PC Card Type III hard drive. All hard drives contain media for data storage in the form of a rotating disk, read/write head(s), a motor, and electronics for interfacing and control. Each hard drive type can be susceptible to damage from severe shock and other stressful environmental impacts. The degree of susceptibility to damage is directly related to the individual hard drive and mounting system employed.

When reading or writing to the hard disk, the head is "flying" on a thin layer of air, micro-inches above the disk. A shock can cause the read/write head to contact the spinning disk, resulting in immediate loss of stored data and possible physical damage to the disk. It could also

create loose debris in the drive enclosure that may cause progressive damage over time.

To reduce exposure to high operating shocks, the mobile computer uses power modes for the hard drive that prevent the read/write heads from being positioned over the disk when it is not being used: idle mode and standby mode.

You can reduce the risk of damage to the hard drive and increase the reliability of the hard drive and data integrity by following the recommendations below.

Internal Hard Drives

- Do not intentionally drop the computer. The unit is designed to withstand the day to day rigors of the mobile environment and provide years of reliable service. The useful life of the product can be enhanced by not intentionally abusing it.
- Use the power management feature control in the System Configuration Utility (SCU). Power management conserves power but also ensures that the read/write heads are unloaded and the hard drive is spun down within the time specified.
- Whenever possible suspend the unit by pressing FN+OFF before moving it from one location to another. This will unload the read/write heads and spin down the disk.
- Maintain the environmental seal of the computer by keeping the PC Card door closed and latched. Also avoid exposing the unit to extreme temperatures or moisture when the PC Card door is open.
- Periodically backup or archive important files and data.

External PC Card Hard Drives

Each PC Card hard drive manufacturer provides specific guidelines for the care and handling of the product. In addition, follow these recommendations:

- When the PC Card hard drive is not inserted in a PC Card socket, store the hard drive in a protective carrying case. This will help protect it from inadvertent shocks.
- Always use care when handling the hard drive. Do not drop, bend, flex, or crush it.
- Avoid exposing the PC Card hard drive to extreme moisture, heat, or sunlight.
- Keep all debris out of the connector to ensure good electrical connections.
- There are no user repairable parts in the PC Card hard drive. Do not attempt to disassemble any part of the hard drive. The warranty will be voided if drive seals are broken or screws have been removed.
- Periodically backup or archive important files and data.

If you encounter or suspect hard drive problems, you can run SCANDISK from the MS-DOS prompt. If you are not familiar with SCANDISK, enter SCANDISK/? at the DOS prompt for a description of usage and syntax. SCANDISK will identify any failures on the hard drive and prompt you for corrective action based on selected options. If problems are found, it may be necessary to run SCANDISK several times to determine the extent and severity of the problem. SCANDISK may discover multiple bad clusters. Up to ten bad clusters can be allowed before returning the computer for service. After you have run SCANDISK and the problem persists or becomes more severe, or if SCANDISK finds more than ten bad clusters, return the unit for service.

Battery Maintenance and Storage

Maintaining Batteries

Follow these guidelines to maintain performance of Nickel Metal Hydride (NiMH) batteries.

- Avoid exposing batteries to extremely hot or cold temperatures for long periods. To prevent possible damage to the battery, the mobile computer does not allow the battery to charge if the internal temperature of the battery gets too low (< 5°C or < 41°F) or too high (> 50°C or > 122°F).
- Charge the battery nightly where the temperature will remain around 20°C (68°F).
- Deep cycle discharge your battery when requested, which may be as often as 3 months, depending on usage.

Storing Batteries

- Store the battery within the recommended temperature range: 10°C to 30°C (50°F to 86°F).
- Unused or stored batteries can lose power over time. When you install a battery that has not been used for awhile, connect external power to the computer and charge the battery.
- After storage, deep cycling the battery up to four times in succession may increase its capacity. You may want to do this over consecutive weekends since each deep cycle process can take up to 40 hours. After this initial conditioning, maintain battery capacity by deep cycling at the recommended frequency.

Computer Maintenance and Storage

Maintaining Your Computer

Follow these guidelines to help maintain the condition and performance of your computer.

- Turn off the computer when you are not using it.
- Charge the batteries daily or whenever their capacity is low.
- Operate the computer within the recommended temperature ranges of -20°C to +60°C (-4°F to +140°F).

Care and Cleaning

Physical Inspection Periodically inspect the computer and accessories for wear, damage, or loose or missing parts. Identifying and correcting potential problems early can help reduce the need to return the unit for service.

Outside Case Like all tools, the outside of the computer will get dirty with use. The case is made of painted Magnesium with Santoprene bumpers and polycarbonate blend (plastic) doors and covers. These areas can be cleaned with a solution of one part Formula 409® and one part water. Follow the procedure below.

To clean the outside case

1 Disconnect external power and turn off the computer.

2 Remove the battery.

3 Using a soft, dry cloth (do not use paper products because they can scratch the surface), add a small amount of cleaning solution to the cloth and clean the computer case and bumpers.

4 Wipe off any excess liquid with a soft cloth.

5 Reinstall the battery.

Display Periodically inspect the display to make sure the contrast and brightness functions are operating properly and that all pixels are operational.

Note If you have a 10.4-inch color display, the FN+F2 and FN+F3 keys to adjust backlight brightness are only active when MaxBright is off. Additionally, the contrast keys, FN+F4 and FN+F5 are not active for this display.

If you have a touch screen

- Always use an approved stylus.
- Never use sharp, hard, or abrasive implements on the touch screen such as ball point pens, pencils, or keys. They could damage the screen.

To clean the display assembly, use the same cleaning solution and procedure described earlier for the outside case. In some cases, you can use a small amount of isopropyl alcohol to remove streaks or smears. Use a soft, clean cloth to clean the display. Do not use paper products because they can scratch the screen.

External Power Connector The external power connector may sometimes be exposed to moisture and/or contamination causing an unreliable connection to the external power source.

Clean the connector using a cotton swab dipped in isopropyl alcohol.

RJ-11 Connector Make sure this connector is operating properly. During normal use, the connector pins can get dirty or become broken, bent, or pushed out of place. Clean the connector with a cotton swab dipped in isopropyl alcohol.

If the connector needs to be replaced, this can be done without returning the unit for service. Contact your local support person for more information.

Keyboard Check all keys to make sure they are working properly. To clean the keyboard, use the same cleaning solution and procedure described above for the outside case.

If keyboard problems persist, the keyboard might need to be replaced. This can be done without returning the unit for service. Contact your local support person for more information.

I/O Ports Make sure the video, serial, and parallel ports are operating properly. Periodically inspect the ports for damage or contamination, and make sure the cover is attached to the computer. The I/O cover can be replaced without returning the unit for service. Contact your local support person for more information.

PC Card Door and Connector Whenever possible, make sure this door is closed and latched properly. When the PC Card door is closed, it provides a watertight seal for the PC Card socket. Shield the area from all contaminants such as liquids, rain, snow, and dust when the door is open.

If the door needs to be replaced, this can be done without returning the unit for service. Contact your local support person for more information.

Make sure the PC Card connector is operating properly by reading from or writing to a PC Card.

Battery and Battery Well The battery well is not sealed, so it is possible for moisture to enter this area. If this happens, remove the battery and use a clean, dry cloth to wipe away any moisture from the battery well. Also remove any moisture from the battery and battery connectors. The connectors may corrode if they are exposed to moisture for extended periods. Corrosion can be removed with a cotton swab dipped in isopropyl alcohol.

Cradle Contacts The cradle contacts on the bottom of the computer may get dirty with daily use. Pins can be cleaned with a cotton swab dipped in isopropyl alcohol.

Storing Your Computer

You can store the mobile computer for approximately 30 days without losing data as long as the battery is fully charged to begin with.

If you plan to store the computer for more than 30 days, follow these storage guidelines.

To store the computer

1 Files and data should be saved before storing the computer.

   Contact your organization's help desk about the procedure for backing up files or data.

2 Exit all applications and use the appropriate procedure to exit from your operating system.

3 Turn off the computer.

4 Remove the battery from the unit and store it in a dry place.

5 Store the computer within the recommended temperature ranges of -40°C to +75°C (-40°F to +167°F).

   If you use PC cards, refer to the manufacturer's instructions you received with the card for storage and care information.

> Note When you turn on the mobile computer after it has been stored for a long period, you may need to reset the system by holding down both mouse buttons for at least 10 seconds and then releasing the buttons.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APPENDIX A

Error Messages

Introduction

The following are possible error and warning messages you may encounter while operating the computer. The messages in this section are listed alphabetically.

Error and warning messages are generated by several different sources including:

- Power On Self Test (POST)
- MS-DOS
- Windows
- Applications

POST Messages

When the mobile computer restarts, it tests its hardware components. This test is called the Power On Self Test (POST). If the system finds an error during this test, it displays an error message.

Some POST errors can occur before anything can be displayed on the screen. In this case, the computer issues a series of beeps, then stops working. This type of error indicates a serious hardware problem, and you should contact your supervisor or your organization's help desk.

The most common POST error messages are listed next along with solutions you can try.

BIOS ROM bad checksum

An expansion card has a bad ROM checksum. The expansion card may need to be replaced. Contact your supervisor or your organization's help desk.

-Disk not found

-FATAL: CMOS RAM test failed

-FATAL: DMA controller faulty

-FATAL: Faulty DMA page registers

-FATAL: Faulty refresh circuit

-FATAL: Interrupt controller failed

-FATAL: No RAM found

-FATAL: No video display found

-FATAL: RAM error at location xxxxxx: Wrote: xx Read: xx

-FATAL: ROM checksum incorrect

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your supervisor or your organization's help desk.

Fixed disk controller failure

Disk controller is not responding. Report this error to your supervisor or your organization's help desk.

Fixed disk failure

Report this error to your supervisor or your organization's help desk.

Floppy disk fault - insert valid boot disk and press any key

If no floppy drive is present, run the System Configuration Utility (SCU) and disable the floppy disk controller. (See Section 5, "Customizing Settings," for more information about the SCU.)

Gate A20 failure

Hardware failure. Report this error to your supervisor or your organization's help desk.

-Hard disk boot sector invalid

-Hard disk failed

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

-Insert boot-disk and press any key

-Internal cache test failed

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

-Keyboard clock line failure

-Keyboard controller failure

-Keyboard data line failure

Reboot the computer by pressing CTRL+ALT+DEL. If the message persists, and the keyboard is not usable, report this error to your supervisor or your organization's help desk.

-Keyboard failure

-Keyboard stuck key failure

-Memory failure at AAAAAAAA, read XX expected YY

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

No boot device available — press F1 to retry boot

Reboot the computer by pressing CTRL+ALT+DEL. If the problem persists, the hard disk may need to be replaced. Report this error to your supervisor or your organization's help desk.

No boot sector on hard disk

Data corrupted on hard disk. Restore hard disk data by rebooting from a bootable PC card.

No timer tick interrupt

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

Non-system disk or disk error — Replace and press any key to continue

Remove the non-bootable PC memory card from the card socket and press any key to reboot.

Non-system disk - insert boot disk and press any key

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

Press the F1 key to continue

This message indicates that an error was found during POST. Pressing the F1 key allows the system to attempt to boot.

Shutdown failure

Reboot the computer by pressing CTRL+ALT+DEL. If the message persists, contact your supervisor or your organization's help desk.

Unexpected interrupt in protected mode

Reboot the computer by pressing CTRL+ALT+DEL. If the message persists, contact your supervisor or your organization's help desk.

WARNING! PC87570 initialization incomplete. Code=XXX

Press ENTER to continue and then restart the computer by pressing CTRL+ALT+DEL. You can continue to use the computer since basic computer functions may still be operable; however, some functions may not work properly.

If the problem persists, contact your supervisor or your organization's help desk.

WARNING! Boot sector 0 has changed

The boot sector of the hard drive has been modified. This message also may be displayed when booting from drive C after booting from another device. Pressing F1 will allow the system to continue to boot. If this problem persists, contact your organization's help desk.

-WARNING: CMOS checksum invalid - run SCU

-WARNING: CMOS failure - run SCU

Run the System Configuration Utility (SCU) to set the system configuration. If the problem persists, contact your organization's help desk. (See Section 5, "Customizing Settings," for more information about the SCU.)

-WARNING: Floppy controller failed

-WARNING: Floppy disk track 0 failed

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

WARNING: Floppy information invalid - run SCU

Run the System Configuration Utility (SCU) to set the system configuration. If the problem persists, contact your organization's help desk. (See Section 5, "Customizing Settings," for more information about the SCU.)

-WARNING: Keyboard controller failure

-WARNING: Keyboard failure

Reboot the computer by pressing CTRL+ALT+DEL. If the problem persists, the keyboard is not usable; contact your organization's help desk.

-WARNING: No bootable floppy drive 0 installed

-WARNING: No interrupts from timer 0

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. If the problem persists, contact your organization's help desk.

WARNING: Time/date corrupt - run SCU

Run the System Configuration Utility (SCU) to set the time of day and date. (See Section 5, “Customizing Settings,” for more information about the SCU.)

WARNING: Unexpected amount of memory - run SCU

Run the System Configuration Utility (SCU) to reinitialize the system configuration. If the problem persists, contact your organization’s help desk. (See Section 5, “Customizing Settings,” for more information about the SCU.)

xxxxxh Option ROM checksum failure where xxxxxh is the starting address of the option ROM

An expansion board contains a defective ROM. Try restarting the computer by pressing CTRL+ALT+DEL. If the problem persists, the expansion board may need to be replaced. Report this error to your supervisor or your organization’s help desk.

-PC87570 CPU test failed! Press ENTER to continue

-PC87570 initialization failed! Press ENTER to continue

-PC87570 RAM test failed! Press ENTER to continue

-PC87570 ROM test failed! Press ENTER to continue

Restart the computer by pressing both mouse buttons for at least ten seconds and then releasing the buttons. You can press ENTER to continue to use the computer since basic computer functions may still be operable; however, the battery will not be charged properly. If the problem persists, contact your organization’s help desk.

MS-DOS Messages

The MS-DOS operating system may display a warning or error message if it encounters a problem with a command in the CONFIG.SYS or AUTOEXEC.BAT file, or a command that you entered at the DOS prompt. Following are a few of the most common MS-DOS messages.

Bad command or file name

A command was entered that is spelled incorrectly or does not exist on the computer.

Invalid media type reading drive D

Abort, Retry, Fail?

The PC memory card may not be formatted. Press A to abort, then format the card using the MS-DOS Format command, or from Windows using the Format Disk command.

Invalid drive specification

You tried to access a drive that does not exist. This can happen if you try to access drive D, but the PC card drivers are not loaded. Report this error to your supervisor or help desk.

Non-System disk or disk error

Replace and press any key when ready

This can occur if a PC memory card is in the card socket and you restart the computer. Remove the card, and then press any key.

Not ready reading drive D

Abort, Retry, Fail?

Make sure that the PC card is inserted fully into the card socket, then press R to retry. See Section 8, "Using PC cards" for more information.

Windows Messages

Windows messages are typically self-explanatory. See Appendix B, “Troubleshooting,” for more information.

Application Messages

Both MS-DOS and Windows applications may display messages if a warning or error condition occurs. Refer to the online Help or other documentation for the application that generated the message.


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APPENDIX B

Troubleshooting

What to Try First

This section is designed to help you determine and fix problems you might encounter while operating the mobile computer. Try the following things in order:

- First look through the categories in this section for a solution.
- If you don't find a solution for your situation here, try one of the resources listed below.
- If you are having a problem with a computer application, use the online Help that comes with the application to find a solution.
- If you still cannot resolve your problem, contact the help desk at your organization.

For More Help

- Windows 95 online Help is already installed on your system. To access this information, select Help from the Start Menu.
- A ten-minute Windows 95 tutorial is accessible from the Start Menu by selecting Help, Contents, "Tour: Ten Minutes to Using Windows."
- Third-party Windows manuals are available from your local bookstore.

Common Solutions to Common Problems

Solutions to some common problems are listed on the following pages under these categories:

- Applications
- Batteries
- Cellular Modem
- Display
- Hard Disk
- I/O Ports
- Keyboard
- Landline Modem
- Miscellaneous
- Mouse
- PC Cards
- Pen/Touch screen
- Peripherals
- Radio Modem

Applications

My application locks up, acts strangely, or produces a General Protection Fault (GPF) error

- If you've tried to resolve the problem other ways and your application still doesn't respond, you may need to restart your computer as described below.

CAUTION	Restarting your computer may corrupt files or data.

To reboot your computer, press CTRL+ALT+DEL.

If the computer does not restart when you press CTRL+ALT+DEL, the keyboard may be locked up. Reset the computer by holding down both mouse buttons for at least ten seconds and then releasing the buttons.

- The data on the hard disk could be corrupted. Run SCANDISK.
- Windows is out of memory/resources. Exit Windows and restart Windows.
- If you are using a communications application, make sure that the Interrupt Request lines (IRQ) for COM3 and COM4 specified for Windows match the IRQ lines specified in the SCU. See Section 5, "Customizing Settings," to view and change IRQ settings.

The Speaker Phone application does not work and it locks up or is very slow after dialing

- Make sure the IRQ is set to the same value in both Windows and in the SCU. See Section 5, "Customizing Settings."

When trying to install some third-party software applications, the message "Insert disk into drive B" appears

- Before running Windows to install the program, enter the following command at the DOS prompt:

  SUBST A: C:\

...Applications

In Windows, Windows and the mouse lock up when aborting the deep cycle process in Battery Maintenance

- Restarting the computer by pressing CTRL+ALT+DEL corrects the problem.

Communications programs such as HyperTerminal, Procomm Plus, or Speaker Phone don't seem to work or they lock Windows

- If you are using the internal modem, be sure to specify COM3 as the communications port.
- When you first try to use HyperTerminal or similar application, the system responds with a message asking if you want to install the modem. Answer "Yes" to this question and follow the instructions on the screen to install it.
- Verify with your company that your computer has an internal modem installed.
- Make sure the IRQ lines for COM3 and COM4 are specified for Windows. See Section 5, "Customizing Settings," for more information.

Third-party applications don't work with COM3

- Make sure a modem is installed. Locate the "Config" string label on the bottom of the computer; a modem is not installed if the seventh digit is Z.
- Make sure your application is set to use COM3.
- Make sure your application is using the correct communication settings (baud, parity, etc.).
- Make sure that the Interrupt Request lines (IRQs) for COM3 or COM4 specified for Windows match the IRQ lines specified in the SCU. See Section 5, "Customizing Settings," for more information.
- You may also need to try a different IRQ setting. See Section 5, "Customizing Settings," for more information.

Batteries

The battery does not charge

- To prevent possible damage to the battery, the system will not allow a charge if the battery temperature is extremely hot or cold (such as in a closed, unattended vehicle). If possible, charge the battery in a location with a moderate temperature of around 20°C (68°F).
- Keep the display tilted open and allow unrestricted airflow while the battery is charging so excess heat can escape and prevent the battery from overheating.
- If possible, turn off the computer while the battery is charging.
- Try enabling the "Suspend on AC Power" option under the Power, Suspend/Resume Control menu in the System Configuration Utility (SCU). This allows the system to automatically suspend while it is connected to external power.
- If the battery is new or has been stored for a week or more, follow this procedure:

  1 Make sure the computer is turned off (press FN+OFF).

  2 Open the battery door and remove the battery.

  3 Connect the AC adapter to the computer and an AC wall outlet, and then turn on the computer by pressing FN+ON (FN+SPACEBAR).

  4 Reinstall the battery and replace the battery door.

  5 Allow the system to remain idle for one hour with the AC adapter connected to the computer.

  The external power light blinks when the battery starts charging.

  6 If the battery still fails to charge after an hour, remove the battery, wait several seconds, and then install it again.

  If the battery does not begin charging within several minutes, return the unit for service.

...Batteries

The batteries take much longer than three hours to charge

- Under moderate temperatures, about 21°C (70°F), the computer's battery takes 3 to 4 hours to completely charge. Under extremely cold or hot temperatures, however, the battery can take up to 16 hours to fully charge.

The batteries don't last very long

- Deep cycle discharge the battery using the Battery Maintenance application. If your battery is new or has not been used for several weeks, deep cycle discharging the battery over two or three consecutive weekends may substantially increase its capacity.
- As your battery ages, the maximum capacity that it can hold naturally decreases, and even the best maintained batteries eventually need to be retired. Consider replacing the battery if you are not getting the usage you need from it.
- You may have a defective battery. Check the battery condition with the Battery Status application. Generally, a battery should be replaced when it charges to less than 80 percent of capacity.

The charging light doesn't flash

- Verify that a battery is installed in the unit.
- This may indicate that the charging process terminated. Use the Battery Status application to determine whether a normal or abnormal condition caused the charging process to terminate. Select "Last Charge Termination" in the More Info dialog box.

The gas gauge isn't full after charging the battery

- This may indicate that the charging process terminated prematurely. Use the Battery Status application to determine if some condition caused the charging process to terminate. Select "Last Charge Termination" in the More Info dialog box.

...Batteries

The ambient temperature rises rapidly when charging the battery at room temperature

- This is normal. The internal ambient temperature is always 0º to 16º higher than the external ambient temperature. Ambient temperature is not used for charge termination criteria.

The gas gauge reads "full," but the indicator light is still blinking

- If you charge your battery daily, rely on the gas gauge reading to determine battery capacity. The charge mode may have switched from Fast to Slow because the battery became too hot. The charging process is trying to put a little more capacity into the battery; however, external power can be removed because the battery is virtually full.
- If your battery is new or has not been used for several weeks, rely on the indicator light to determine when the battery is fully charged. The gas gauge is unreliable in these cases; it may read 100 percent, but the actual capacity is only 10 percent.

My battery seems to have less and less capacity

- To keep your battery at optimum performance, perform a deep cycle discharge every 2-1/2 to 3 months using the Battery Maintenance application.
- Over time, your battery may develop "memory effect." This occurs when the battery is partially discharged and recharged repetitively without a full discharge. A partial or shallow discharge means that you use less than 50 percent of its capacity before charging. Deep cycle discharge the battery using the Battery Maintenance application to help prevent memory effect.
- If your battery is new or has not been used for several weeks, deep cycling it up to four times in succession may increase its capacity. You may want to do this over consecutive weekends since each deep cycle process can take up to 40 hours. After this initial conditioning, maintain battery capacity by deep cycling at the recommended frequency.

- Over time as your battery ages, the maximum capacity that it can hold naturally decreases, and even the best maintained batteries eventually need to be retired. Consider replacing your battery if you are not getting the usage you need from it.

Cellular Modem

The Sierra Watcher utility has a run time error when starting or when trying to setup the cellular modem

- Make sure the Speaker Phone application is not running.

Display

The display performance is slow

- The temperature may be too cold. Move the computer to a warmer operating environment.

I can't read the display

- Adjust the backlight.

  -On a monochrome display, pressing FN+F1 toggles the backlight on and off.

  -On a color display, the backlight is on whenever the computer is running. Pressing FN+F1 toggles the MaxBright feature on and off.
- The automatic power-saving mode may have shut off (suspended) the computer. Press FN+ON to resume.
- Adjust the contrast by pressing FN+F4 and FN+F5 (these keys are not active on a 10.4-inch color display).

The underlined, inverse, and hypertext characters are difficult to read on the screen

- Adjust the contrast by pressing FN+F4 and FN+F5 (these keys are not active on a 10.4-inch color display).

...Display

- Change the color scheme. From the Start Menu select Settings, Control Panel, choose Display, and then click the Appearance tab to make changes to the color scheme.
- Make the online hypertext jumps black by adding the line JumpColor=0,0,0 to the [Windows Help] section of WIN.INI.

The display goes "squiggley wiggley" after removing/inserting the battery

- This can occur if you attempt to turn on the unit with a low or depleted battery. Restart the unit by pressing and holding down both mouse buttons for at least 10 seconds and then releasing the buttons. Connect external power and recharge the battery.

> CAUTION Restarting your computer while you are running applications or while you are working Windows may corrupt files or data.

I can't see the cursor while using the DOS editor

- Press FN+INSERT to change from insert mode to overwrite mode to enable a block cursor. When it defaults to insert mode, the DOS editor uses an underline cursor which is less visible than the block cursor for overwrite mode.

The display appears to have random pixels darkened after scrolling

- Contact your supervisor or your organization's help desk for information about correcting this problem.

I changed my display resolution, but I see no difference on the screen

- Try restarting your computer by pressing CTRL+ALT+DEL for the changes to take effect.

The NeoMagic tab under Display Properties disappears if the number of colors is set to 16

- If the NeoMagic tab disappears when the number of colors is set to 16, set the number of colors to 256 or more.

Hard Disk

The hard disk will not spin up so the computer can't boot up

- This occurs if the unit is exposed to extreme temperature and humidity. This is a hardware failure associated with the hard disk power circuit. Return the unit for service.

I can't save files because the disk is full

- Report this situation to your supervisor or your organization's help desk.

Diskette Read Error

- Any card in the PC card socket except for a properly formatted memory card will cause this error since it is trying to read the PC card.

I/O Ports

I can't access a serial port

- Make sure another application is not using the same port.
- Make sure the correct COM port is selected in your application. Refer to the online Help for your application.

...I/O Ports

Floppy disk attached to the parallel port does not work after suspend/resume

- Not all external floppy disk drives will work with the mobile computer. Make sure all add-on device drivers are Advanced Power Management (APM) aware.

PC SRAM cards are not readable on the mobile computer

- If the SRAM card is reformatted on the mobile computer, read/write operations will be successful.
- Verify the following lines are in your CONFIG.SYS:

  "DEVICE=C:\WINDOWS\SYSTEM\CSMAPPER.SYS"

  "DEVICE=C:\WINDOWS\SYSTEM\CARDDRV.EXE\SLOT=2"

Serial ports do not work consistently with Procomm Plus Version 2.00 or earlier

- Procomm Plus Versions 2.01 and later do support 16550 buffered UART operation. Upgrade software.

The system does not automatically detect COM3

- This error can occur if COM3 is removed using Device Manager in System Properties and then "Add New Hardware" is run. To prevent this problem, open a DOS box and enter MODEM ON before running "Add New Hardware."

Keyboard

Something unexpected happens when I press a key

- You may have pressed a key combination that performs a Windows function. Make sure you are pressing the correct keys for the application you are running.

I can't tell if I'm in NUM LOCK mode

- This icon appears on the Windows 95 Taskbar when NUM LOCK is enabled:

  

  Pressing FN+NUM LK toggles NUM LOCK mode on and off.

PGUP, PGDN, HOME, and END keys don't work

- You need to press the FN key in combination with other keys for certain functions. For example:

  To page up, press FN+UP ARROW.

  To page down, press FN+DOWN ARROW.

  To move to the home position, press FN+HOME.

  To move to the end position, press FN+END.

Incorrect characters appear on the screen when I press certain keys

- You may be in NUM LOCK mode. Press FN+NUM LK (FN+F12) to toggle NUM LOCK mode off.

Keyboard stuck failure" appears when the computer boots up

- This error occurs if more than four keys are pressed during the Power On Self Test (POST).

Landline Modems

The modem doesn't work

- Make sure a modem is installed. Locate the "Config" string label on the bottom of the mobile computer; a modem is not installed if the seventh digit is Z.
- When you first try to use HyperTerminal or similar application, the system responds with a message asking if you want to install the modem. Answer "Yes" to this question and follow the instructions on the screen to install it.
- If you are operating in DOS, verify that the modem has been powered on using MODEM ON. MODEM OFF will power off the modem to conserve power when the modem is not in use.
- Make sure the communication settings are correct in your application. Refer to the online Help for your application.
- Make sure you have the correct COM port selected in your application. Refer to the online Help for your application. The following table describes the correct settings for each modem type.

Modem type	COM port
External	COM1 or COM2
Internal landline	COM3
Internal CDPD	COM4

- Make sure that the Interrupt Request lines (IRQs) for COM3 or COM4 specified for Windows match the IRQ lines specified in the SCU.

  You may also need to try a different IRQ setting. See Section 5, "Customizing Settings."

The modem doesn't dial a number

Check these things:

- If you are running a program in MS-DOS, make sure the modem is turned on using MODEM ON before you run the application. MODEM OFF will power off the modem to conserve power when the modem is not in use.

- If you are using an external modem, make sure the cables are attached correctly.
- If you are using an internal modem, make sure the modem is installed. Check with your organization to determine if your computer has an optional internal modem installed.
- Make sure your communications parameters are correct in your application. Refer to the online Help for your application.
- Make sure you have the correct COM port selected in your application. Refer to the online Help for your application. The following table describes the correct settings for each modem type.

Modem type	COM port
External	COM1 or COM2
Internal landline	COM3
Internal CDPD	COM4

- Make sure that the Interrupt Request lines (IRQs) for COM3 or COM4 specified for Windows match the IRQ lines specified in the SCU.

  You may also need to try a different IRQ setting. See Section 5, “Customizing Settings.”

The modem dials and receives an answer but does not establish a connection

- You may have incorrect parameters selected for your application to talk with the remote modem. Refer to the online Help for your application.
- You may need to adjust your modem’s baud rate or protocol selection.
- Make sure that the Interrupt Request lines (IRQs) for COM3 or COM4 specified for Windows match the IRQ lines specified in the SCU.

  You may also need to try a different IRQ setting. See Section 5, “Customizing Settings.”

...Landline Modems

Communications programs such as HyperTerminal, Procomm Plus, or Speaker Phone don't seem to work or they lock Windows

- If you are using the internal modem, be sure to specify COM3 as the communications port.
- Verify with your company that your computer has an internal modem installed.
- When you first try to use HyperTerminal or similar application, the system responds with a message asking if you want to install the modem. Answer "Yes" to this question and follow the instructions on the screen to install it.
- Make sure the IRQ lines for COM3 and COM4 are specified for Windows. See Section 5, "Customizing Settings," to view and change IRQ settings.

Third-party applications don't work with COM3

- Make sure a modem is installed. Locate the "Config" string label on the bottom of the mobile computer; a modem is not installed if the seventh digit is Z.
- Make sure your application is set to use COM3.
- Make sure your application is using the correct communication settings (baud, parity, etc.).
- The modem may not be powered on. If you are using a DOS application, before running the application, make sure that MODEM ON is called from the DOS command line or from a batch file.
- Make sure that the Interrupt Request lines (IRQs) for COM3 or COM4 specified for Windows match the IRQ lines specified in the SCU.

  You may also need to try a different IRQ setting. See Section 5, "Customizing Settings."

Attempting to use the speaker phone without a modem installed causes Windows to lock up

- This can also happen if the IRQ settings in Windows under Control Panel, Ports don't match those in the SCU. Verify IRQ settings and that the modem option is installed. Locate the "Config" string label on the bottom of the mobile computer; a modem is not installed if the seventh digit is Z.

The modem dials and the answering modem generates tone, but our modem does not begin the training sequence to establish a connection

Although the problem may appear to originate from the computer, the source of the problem is the answering modem.

- Try setting up the answering modem to generate the correct V.22 tone which can usually be done by sending an AT command to the modem. See the AT Command summary in the *AT Command Reference* manual more information.
- Add %!1300AO to the initialization string. If used, this command must be sent immediately before the command to dial the desired phone number and sent again before re-dialing the number since the modem will default to the original setting at the end of the session.

Miscellaneous

The computer shuts off unexpectedly

- The computer has entered suspend mode. Press FN+ON to turn it back on.
- The battery capacity may be low. Connect external power to charge the battery, or replace the battery with a fully charged one.
- The battery door may be loose. Make sure the battery door is securely latched.

...Miscellaneous

- The computer turns off automatically if you remove the battery door. To turn on the computer, replace the door, make sure the door is secured, and press FN+ON.
- The battery contacts may be dirty. Turn off the computer by pressing FN+OFF, remove the battery, and clean the contacts.

The speaker volume is too high or too low

- Increase the volume by pressing FN+F7; decrease the volume by pressing FN+F6.

The computer won't turn on

- The battery may not be installed properly, or it may not be fully charged. Make sure a fully charged battery is properly installed.
- Connect external power to charge the battery if it is not charged.
- If you are using the AC adapter, check the electrical outlet you are using to make sure it is working properly.
- If the mobile computer does not turn on, restart the computer by holding down both mouse buttons for at least 10 seconds and then releasing the buttons.

> CAUTION Restarting your computer while you are running applications or while you are working Windows may corrupt files or data.

The computer won't turn off

- Press FN+OFF.

  If pressing FN+OFF does not turn off your computer, the system may be locked up. Reboot your computer by pressing CTRL+ALT+DEL. If your system still does not respond, restart your computer by holding down both mouse buttons for at least 10 seconds and then releasing the buttons.
- The unit may have been idle for an extended period. Hold down both mouse buttons for at least 10 seconds and then release the buttons.

...Miscellaneous

The computer enters suspend mode too quickly

- When there is no activity for a period of time, the computer turns off or enters suspend mode. To extend this time, use the SCU and enter a new time. See Section 5, “Customizing Settings,” for information about accessing this utility.

The computer doesn’t automatically suspend

- Check to make sure the COM ports are off. For example, exit any application that uses COM ports such as Speaker Phone.
- Make sure external power is not connected. Some systems will not suspend automatically when they are connected to external power.

The computer is locked up

- If you’ve tried to resolve the problem other ways and your system still doesn’t respond, you may need to restart your system as described below.

> CAUTION Restarting your computer while you are running applications or while you are working Windows may corrupt files or data.

To reboot your computer, press CTRL+ALT+DEL.

If the computer does not restart when you press CTRL+ALT+DEL, the keyboard may be locked up. Reset the computer by holding down both mouse buttons for at least 10 seconds and then releasing the buttons.

The system date and time are incorrect

- Reset the correct date and time by choosing the Date/Time icon from Control Panel and making the appropriate changes.

...Miscellaneous

All of the indicator lights are flashing

- This can occur during a Power On Self Test (POST) and means the test has failed. Reset the mobile computer by pressing CTRL+ALT+DEL or holding down both mouse buttons for at least 10 seconds and then releasing the buttons.

CAUTION	Restarting your computer may corrupt files or data.

I receive an "out of memory" error message

- Too many applications may be running at the same time. Close applications you don't need.
- Run MS-DOS applications in full screen rather than a window. Press ALT+ENTER to toggle between full screen and window mode.
- If you're using desktop wallpaper, set wallpaper to None. To do this, choose Display from Control Panel and make the appropriate change.
- Make sure you have enough space on your hard disk. Contact your supervisor or your organization's help desk for assistance.
- Set up a permanent swap file. Contact your supervisor or your organization's help desk for assistance.

Holding down both mouse buttons to reset the computer doesn't always work

- Try resetting the computer again. If this doesn't work, remove all power, and allow the unit to remain idle for ten minutes. After ten minutes, connect external power and retry.

This warning message appears when I restart the computer: "Warning 'Include' specifies memory already excluded at D100"

- This problem is generally caused when the PC card controller is *out to lunch*. Reset the computer once again by holding down both mouse buttons for at least 10 seconds and then releasing the buttons.

I can't turn off the computer after booting from a PC Card

- Do not use FN+OFF to suspend the computer if you have booted from a PC Card rather than the internal hard disk. Instead, remove the card and then press CTRL+ALT+DEL to restart the system.

Mouse

I have difficulty double-clicking the mouse fast enough

- From the Start Menu, select Settings, Control Panel, and then choose Mouse. The Buttons tab contains the setting for the double-click speed.

I can't see the mouse pointer

- The mouse pointer may be off the screen. Move the mouse until it reappears on the screen.
- From the Start Menu, select Settings, Control Panel, and then choose Mouse. The Motion tab contains settings for the mouse speed and trail.

It's difficult to position the mouse on window borders

- From the Start Menu, select Settings, Control Panel, and then choose Display. Click on the Appearance tab, select "Active Window Border" under Item, and then increase the numbers under Size.

PC Cards

I can't remove the PC card

- Press the ejector button located inside the PC card door on the back of the computer. Use one finger to press down lightly on top of the card, and then slide it out.
- If the ejector button malfunctions when you press it, release the button and then press it again.

...PC Cards

Diskette Read Error

- Any card in the PC Card socket except for a properly formatted memory card will cause this error since it is trying to read the PC Card.

PC SRAM cards are not readable on the mobile computer

- If the SRAM card is reformatted on the computer, read/write operations will be successful.
- Try loading the SystemSoft CardWorks drivers by running this program:

  C:\DRIVERS\CARDWORKS\SETUP.EXE

The system does not recognize the PC Card CD-ROM when it is inserted into the PC Card socket

- There is a delay of 10 to 15 seconds before the CD-ROM drive is recognized.
- Drivers may not be installed. Contact your organization's help desk for assistance.

The computer locks up when I remove the PC card

- Before you remove the card, select the PC card icon in the system "tray" area of the screen (near the clock in the lower right corner), and choose "Stop [*card name*] card."

I can't turn off the computer after booting from a PC Card

- Do not use FN+OFF to suspend the computer if you have booted from a PC Card rather than the internal hard disk. Instead, remove the card and then press CTRL+ALT+DEL to restart the system.

The Megahertz Ethernet PC card does not work

- This card has two connectors, XJACK and Honda. Use the Honda connector.

Pen/Touch Screen

When I try to use the stylus on my touch screen, nothing happens

- If you cannot select objects accurately with the stylus, you may need to recalibrate the touch screen.

  To calibrate the touch screen

  1 From the Start Menu, select Programs, Touch, and then choose Touchscreen Controls.

  2 Select the Calibrate button.

  3 Follow the instructions on the screen to calibrate the touch screen.

The touch screen display warps or pillows in high humidity

- The computer remains functional; however, moving the computer to a more suitable environment will allow the display to recover.

Peripherals

The parallel floppy drive does not work

- This floppy is not supported on the mobile computer. Use the PC Card floppy instead.

Radio Modems

How can I tell if my RAM radio is working?

Try the following procedure.

1 Make sure the IRQ is set the same in the SCU and in Windows.

  See Section 5, “Customizing Settings,” for more information.

2 Use Battery Status to make sure the battery is at 100 percent capacity.

3 Make sure RFGXM.EXE is loaded in AUTOEXEC.BAT.

4 Exit Windows to a DOS prompt.

...Radio Modems

5 From a DOS prompt, enter: C:\XCTOOLS\XCMASC.

6 Check to make sure the radio indicator light is on.

The following messages appear in order:

"Network Contact Lost" (or something similar as it starts up)

"Network Contacted"

If you receive the first message and not the second, your unit is probably not registered. See Section 4, "If You Have a Radio Modem," for more information, or contact your company's help desk for assistance.

7 After the "Network Contacted" message appears, your radio ID is displayed. Make sure this matches the ID on the bottom of your computer.

If these numbers do not match, contact your company's help desk for assistance.

8 If your unit is registered, type some text and press ENTER.

This sends the text to the RAM network which in turn sends it back to you (sending a message to yourself). After receiving a message, this text appears at the top of the screen: "MPAK received." This means the message was sent successfully. "MPAK rejected" means that the message just echoed back to itself internally within the modem (you may be out of range).

9 Press ALT+R to display signal strength.

If it is greater than 0 db, your radio is probably working correctly.

Press F1 for help on other keys.

...Radio Modems

How can I tell if my ARDIS radio is working?

- First connect the computer to external power, install a fully-charged battery, and then follow the procedure below for your particular operating system.

  1 From the Start Menu, select Shut Down, and then choose “Restart the computer.”

  2 Press F8 when this message appears: “Starting Windows 95...”

  3 Select Option 5.

  This allows you to “single step” through each startup command.

  4 Respond “N” to each prompt EXCEPT the following:

  “Process your startup device drivers (CONFIG.SYS)”

  “DEVICE=C:\WINDOWS\HIMEM.SYS”

  “DEVICE=C:\WINDOWS\EMM386.EXE NOEMS”

  5 From the DOS prompt, enter C:\CD XCTOOLS.

  6 Enter RFGXM.

  Radio driver starts and the radio on/off light comes on; continue to the next step. If the light does not come on, contact your company’s help desk for assistance.

  7 Enter XCMG.

  If a message appears indicating that it was unable to initialize, contact your company’s help desk for assistance.

  8 ARDIS can be contacted to verify that the computer has an ARDIS radio installed and that it is registered with their company.

  Contact your company’s help desk for assistance.

...Radio Modems

XCMASC program can't regain network contact after the radio detects a low battery even when the battery is recharged

- The radio power must be cycled before the radio will resume contact with the network.

Radio application cannot find radio modem

- Make sure the IRQ setting for COM4 is set correctly in the SCU. Many DOS applications assume this to be IRQ 3 rather than the default of IRQ 10.

  See Section 5, "Customizing Settings."

- Make sure that XCPRF is being loaded in AUTOEXEC.BAT before starting the application.

Activating the Radio TSR while in the DOS Editor causes the computer to lock up requiring a hardware reset

- Do not use CTRL+ALT+R while inside the DOS Editor.

The Transparent Mode application doesn't work

- This application is only for the ARDIS radio network.

APPENDIX C
Glossary

AC adapter The standard charging device shipped with the mobile computer that supplies power from an AC wall outlet to operate the computer and charge the battery installed in the unit.

antenna If you have a radio modem installed in your computer, this device sends and receives radio waves for this modem. For best reception, place the antenna in a vertical position.

application A program designed for a specific purpose such as solving a particular business or mathematical problem.

backlight A feature of the computer display that makes information on the screen easier to read in low-light situations. On a monochrome display, the backlight automatically turns off after one minute of inactivity. You must manually turn the backlight on by pressing FN+F1 when you resume. On a color display, the backlight is on whenever the computer is running. *See also* "MaxBright."

battery indicator light The left-most light on the indicator panel, this light illuminates when the computer is operating on battery power and blinks to let you know the battery capacity is getting low.

Battery Maintenance application A separate program that allows you to deep cycle discharge batteries.

Battery Status application A separate program that displays information about the current state of the battery. By default, this program runs automatically when you run Windows.

bit The smallest unit of computer data (binary digit).

deep cycle discharge A user-initiated charging method that completely discharges Nickel Metal Hydride (NiMH) batteries before charging them again. This helps eliminate "memory effect," reconditions the batteries, and helps increase their capacity.

desktop The screen background for Windows on which windows, icons, and dialog boxes appear.

dust cover A cover that provides added protection for the serial, parallel, and video ports when they are not being used.

external power Any of the approved devices used to supply power to the mobile computer including the AC adapter, the vehicle adapter, and the vehicle cradle.

external power light The second light from the left on the indicator panel, this light illuminates when the computer is operating on external power. If a battery is installed, the external power supply automatically begins charging the battery when power is connected. The light blinks to indicate the battery is being charged; it remains on when the battery is fully charged.

fast charge A method of quickly increasing the battery capacity while the mobile computer is attached to external power. This is the normal and preferred charging method. It takes approximately three hours to fully charge the battery using this method.

hard disk A rigid magnetic storage device that provides fast access to stored data. The standard hard disk for the mobile computer is ruggedized to withstand more shock and vibration than hard disks in typical notebook computers.

hardware The electronic components, boards, peripherals, and equipment that make up your computer system.

indicator lights The small lights located between the display and the keyboard that blink or remain on or off to indicate activity on the system. They include an On/Off light, an External Power light, a Disk Activity light, and a Radio On/Off light.

keyboard The keyboard is weather sealed and designed with 93 percent standard key spacing.

MaxBright A feature available on the 10.4-inch color display that intensifies the backlight to its maximum brightness. Pressing FN+F1 toggles MaxBright on and off.

megabytes (MB) A unit of memory measurement equal to approximately one million bytes (1,048,576 bytes).

megahertz (MHz) A measurement of electrical frequency equal to one million cycles per second.

microphone Using the Speaker Phone application, the microphone allows a user to talk to another person.

Microsoft Windows and Windows 95 An operating environment for MS-DOS used on IBM-compatible computers that provides users with graphical windows in which to do their work. All Windows applications have consistent features such as command menus, windows, and dialog boxes.

mouse pointer and buttons On the mobile computer, the integrated mouse pointer is located directly below the spacebar on the keyboard. The left and right mouse buttons are located on either side of the mouse pointer.

MS-DOS Microsoft Disk Operating System. The standard, single-user operating system of IBM-compatible computers.

Nickel Metal Hydride battery (NiMH) The standard types of rechargeable batteries used in the mobile computer.

on/off light The left-most light on the indicator panel, this light illuminates when you turn on the mobile computer; it also blinks to let you know the battery is getting low.

online help A help utility available on-screen while you are using an application.

operating system A set of programs that manage the overall operation of the computer.

parallel port A port that can be used to connect a printer.

PC card A self-contained, credit card-sized device that can be used to store programs, data, or to expand the capabilities of your computer.

port An interface between the computer and external devices.

Power On Self Test (POST) A diagnostic test run by the computer's BIOS system when the computer restarts.

power port A port used to connect the external power supply to the mobile computer.

radio on/off light The right-most light on the indicator panel. If your computer is equipped with a radio modem, this light turns on when the radio modem is powered on. When the computer is off, the light blinks to indicate a message is waiting.

Random Access Memory (RAM) The computer's primary working memory in which program instructions and data are stored so they are accessible directly to the central processing unit (CPU).

RJ-11 connector A port used by the internal modem to communicate over standard voice grade telephone lines.

ruggedized The unique design of mobile computers that are built to withstand rugged and rough environments.

serial port A port that can be used to connect a printer or modem.

slow charge A method of increasing the battery capacity while the computer is attached to external power. This method uses lower AC voltage. It takes approximately 16 hours to fully charge the battery using this method.

software System, utility, or application programs expressed in a computer-readable language. Software programs tell the hardware components what to do.

speaker Located on the bottom of the computer, the speaker provides sound for the unit.

Speaker Phone application The Speaker Phone application is a separate program that allows you to dial a number and talk with another person over telephone lines. To run this application, double-click the Speaker Phone icon in the Mobile Computer Tools folder.

stand alone charger An optional charging device used to charge an additional battery for the computer.

suspend mode Suspend mode turns off certain functions of the computer if there is no activity for a user-specified time. The computer also enters suspend mode if the battery capacity becomes critically low and external power is not connected or the battery is not replaced. Some systems do not automatically enter suspend mode when they are connected to external power.

System Configuration Utility (SCU) A utility that allows you to change default settings for your hardware options and power management.

Taskbar In Windows 95, the area along the bottom of the screen that contains the Start button and buttons for windows, documents, or applications that are open.

utility A program that helps you maintain and improve the efficiency of the computer system.

vehicle adapter An optional device that supplies power from the vehicle battery to operate the computer and charge the battery installed in the unit. It typically connects to the vehicle battery using the cigarette lighter socket.

vehicle cradle An optional, vehicle-based docking station designed to safely secure the computer in a vehicle. You can also use the vehicle cradle to charge batteries, communicate with other devices, and access information from a CD-ROM.

Video Graphics Array (VGA) Video graphics technology that supports up to 256 colors and a graphics resolution of 640 x 480 pixels.

video port This port can be used to connect an external monitor.


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Itronix Corporation
P.O. Box 179
Spokane, WA 99210-0179
www.itronix.com