



*6210 Hand-Held Computer*  
***USER'S GUIDE***

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*Revision B*  
*May 1998*

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## " NOTICE

This equipment meets Class B digital device limits per Part 15 of FCC Rules. These limits protect against interference in a residential area. It emits, uses, and

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If this equipment does cause harmful interference to radio or television reception, which can be determined by turning our 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 radio or television receiving antenna.
- " Increase the separation between the computer equipment and receiver.
- " Connect the equipment into an outlet on a circuit different from that to which the radio or television receiver is connected.
- " Consult the dealer or an experienced radio or television technician for help.

#### **FCC Spread Spectrum Radio Certification**

" NOTICE

This device is certified to operate under Part 15, Subpart C, Section 15.247 of the FCC rules for Intentional Radiation Products. This certification includes Docket 87-389 covering rules effective June 1994. It may not cause interference to authorized radio communication devices, and must accept any interference caused by those devices.

#### **Antenna Requirements**

" NOTICE

FCC rules section 15.203 and Canada's RSS-210 require that this device be operated using an antenna furnished by Intermec Technologies Corporation. The antenna coupling on this product has been designed to accept only antennas manufactured by us. Use of an antenna other than that furnished with the equipment is prohibited by FCC and Industry Canada rules.

#### **Canadian Computer Compliance**

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

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

#### **Canadian Spread Spectrum Radio Certification**

" NOTICE

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

#### **Telephone Installation Warning Notices**

The following notices apply to equipment that may be connected to telephone lines or systems. For your personal safety, and to protect this equipment from potential electrical or physical damage, do NOT connect equipment to telephone lines or data communication equipment unless the following warnings have been read, understood, and complied with.

- " Never install telephone wiring during a lightning storm.
- " Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- " Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- " Use caution when installing or modifying telephone lines.
- " Avoid using a telephone (other than cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- " Do not use the telephone to report a gas leak in the vicinity of the leak.

#### **Installation du téléphone : avertissements**

Les avertissements qui suivent s'appliquent à tout équipement qui peut être branché aux lignes ou systèmes téléphoniques. Pour votre sécurité personnelle et pour protéger l'équipement de tout dommage électrique ou physique potentiel, NE PAS brancher un ordinateur tablette électronique ou ses périphériques aux lignes téléphoniques ou équipements avant que les avertissements suivants aient été lus, compris et observés :

- " Ne jamais installer de câblage téléphonique pendant un orage électrique.
- " Ne jamais installer de prise téléphonique dans un endroit humide à moins que la prise ait été spécifiquement conçue pour être utilisée dans les endroits humides.
- " Ne jamais toucher les fils de téléphone ou de l'équipement terminal non isolés à moins que la ligne téléphonique n'ait été débranchée de l'interface réseau.
- " User de prudence lors de l'installation ou de la modification de lignes téléphoniques.
- " Éviter d'utiliser un téléphone (autre qu'un appareil téléphonique sans fil) pendant un orage électrique. Il pourrait y avoir un faible risque d'électrocution par la foudre.
- " Ne pas utiliser le téléphone afin de signaler une fuite de gaz à proximité de la fuite.

**B CAUTION:** Intermec Technologies Corporation suggests you buy cables from us to connect with other devices. Our cables are safe, meet FCC rules, and suit our products. Other cables may not be tested. They may cause problems from electrostatic discharge or induced energy. Our warranties do not cover loss, injury, or damage from other cables.

**B CAUTION:** Intermec Technologies Corporation recommends that you only purchase Norand Mobile Systems Division certified modems. Intermec does not certify all modems available in the marketplace. Intermec does not warrant noncertified modems; furthermore, these modems may cause problems from electrostatic discharge and may not conform to FCC regulations. For a list of Norand Mobile Systems Division certified modems call Customer Support at 1-800-221-9236 in United States or (country code) 800-633-6149 in Canada.



**WARNING:**

*Do not look into the laser window of a scanner when scanning. Never aim the laser beam into the eyes of another person.*



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# **Section 1**

## **General Information**

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### **About this User's Guide**

This user's guide is divided into four sections and two appendixes.

### **Summary of Sections**

#### **Section 1**

Contains general information about the components of your PEN\*KEY<sup>®</sup> Model 6210 Hand-Held Computer. This includes telling you how the user guide is organized, a summary of the sections, and the specifications for your hand-held computer.

#### **Section 2**

Tells you how to prepare for using your hand-held computer.

#### **Section 3**

Contains information for maintaining your hand-held computer. Maintenance includes recharging the main battery pack, replacing the backup battery and handstrap, and cleaning the hand-held computer.

#### **Section 4**

Steps you through some procedures to use when troubleshooting your hand-held computer. This section does not

contain all troubleshooting that can be done by an authorized Customer Support Specialist, but does contain information to aid you in determining the level of assistance you may need.

### ***Appendix A***

Contains the pin-outs for the external connectors of your hand-held computer. This section is not usually needed for day to day tasks but more to provide technical assistance for interfacing to other manufacturer's products.

### ***Appendix B***

Contains the Utilities Program screens. This is system level information and is intended to be used by your system administration people when defining and setting parameters to support your application.

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## ***Unpacking and Inspecting***

The following procedures explain what to do when your hand-held computer arrives, and what to do if it has been damaged in shipping:

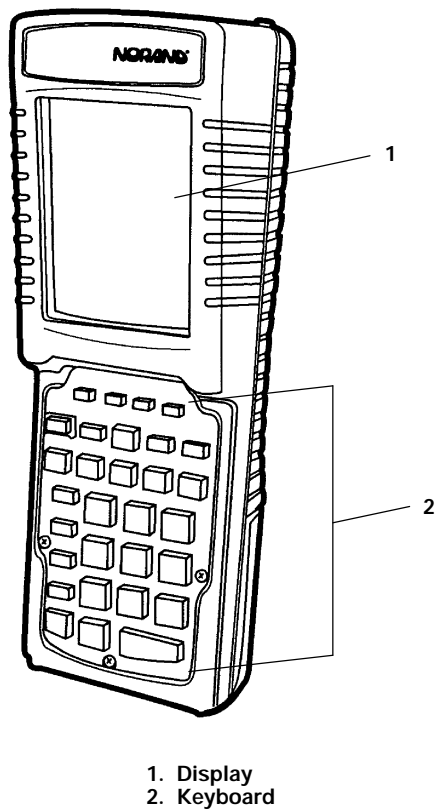
1. Remove the hand-held computer from its shipping container and inspect for any visible damage.
2. If your hand-held computer was damaged in shipping, record the model number, part number, and serial number. The model and part numbers can be found on the back side of the hand-held computer, the serial number is located on the inside of the case.
3. Save all paperwork pertaining to shipment, and immediately notify the transport company of the damaged item(s). Follow their instructions for filing a claim on the damaged items.

Authorized repair of products is available only at Service Centers. Unauthorized repair voids any and all warranties.

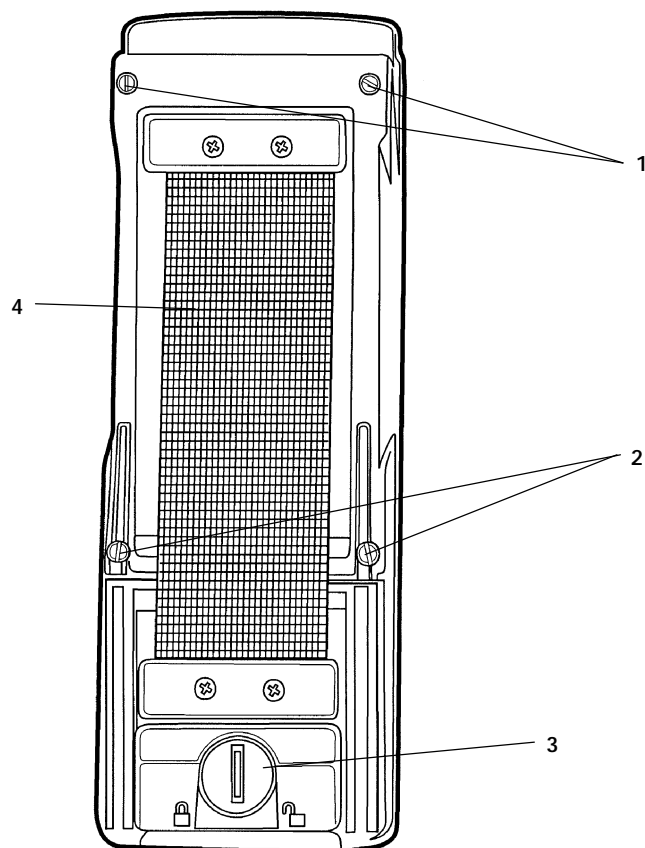
Contact your Sales Representative for additional instructions.

## ***Hand-Held Computer Description***

Figure 1-1 and Figure 1-2 on pages 1-4 and 1-5 show you the location of the key components for your hand-held computer.

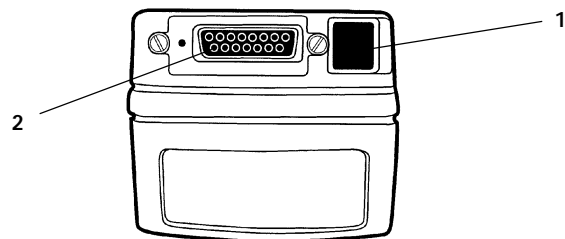


*Figure 1-1*  
**6210 Hand-Held Computer Front View**



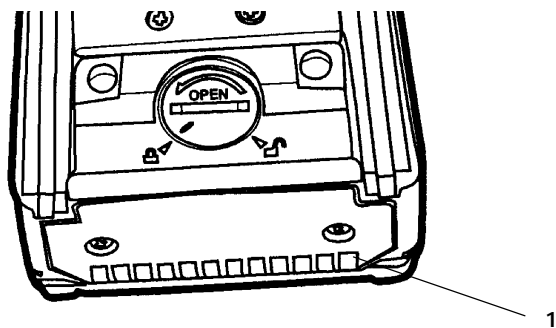
- 1. PC card and backup battery retaining door (top screws)
- 2. PC card and backup battery retaining door (bottom screws)
- 3. Main battery pack compartment latch knob
- 4. Handstrap

*Figure 1-2*  
**6210 Hand-Held Computer Back View**



- 1. Phone jack (optional)
- 2. 15-pin female connector

*Figure 1-3*  
**6210 Hand-Held Computer Top View**



- 1. 12-pin surface contact connector

*Figure 1-4*  
**6210 Hand-Held Computer Bottom View**

## Hand-Held Computer Keyboard

This hand-held computer provides four keyboard options. Figure 1-5 on page 1-8 and Figure 1-6 on page 1-9 detail the 30 and 56 key keyboards.

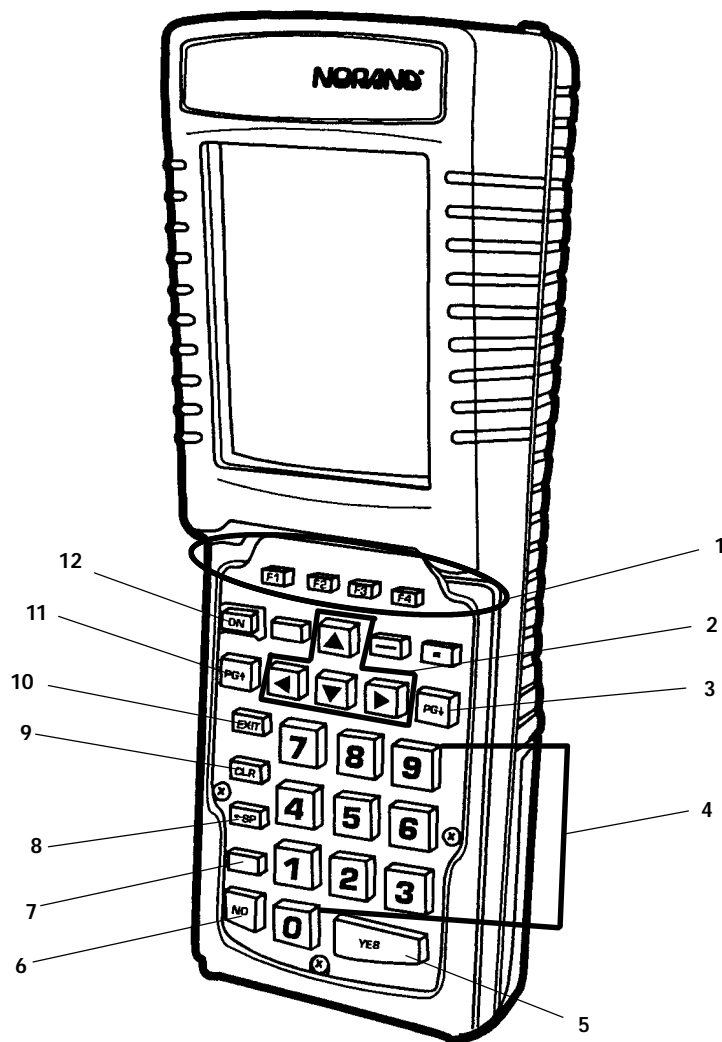
- " For the 30 key keyboard, function and numeric keys are single keystrokes. Alphabetical characters can be entered by using the shift key.
- " For the 56 key keyboard, alphabetical characters and numeric keys are single keystrokes. Special function keys can be entered using the shift key.

### Key Descriptions (30 Key)

1. Function (F1-F4) keys
2. Window scrolling keys
3. Page down key
4. Numeric keys (0-9)
5. YES (Enter) key
6. NO key
7. Yellow shift key
8. Backspace key
9. Clear key
10. EXIT key
11. Page up key
12. ON key

### Key Descriptions (56 Key)

1. Function (F1-F4) keys
2. Alphabetic keys
3. Window scrolling key
4. Page down key
5. Numeric keys
6. YES (Enter) key
7. NO key
8. Yellow shift key
9. Backspace key
10. Clear key
11. EXIT key
12. Page up key
13. Space key
14. ON key



*Figure 1-5*  
**6210 Hand-Held Computer With 30-Key Keyboard**

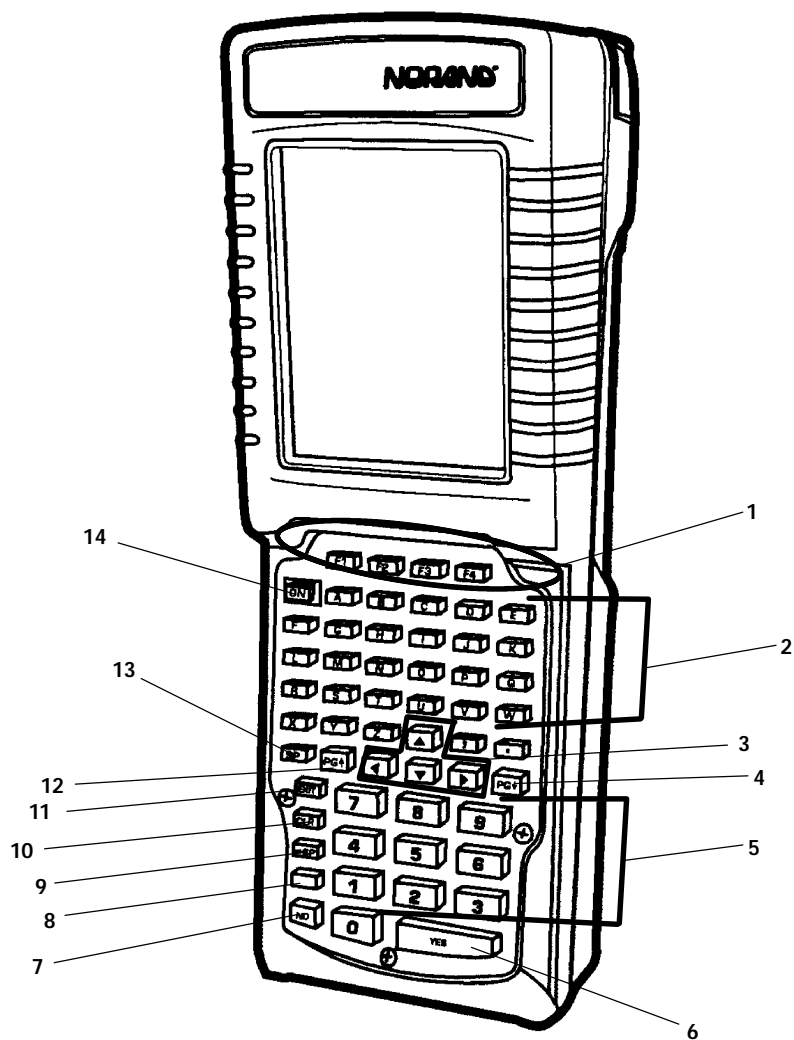


Figure 1-6  
6210 Hand-Held Computer With 56-Key Keyboard

---

## ***Key Descriptions***

This section includes a description of how the shift keys work and the differences between a 30 and 56 key keyboard. Your particular keyboard may have an overlay that has additional keys other than those described in this section. Refer to your application operation manual for descriptions of those keys. The following descriptions cover both the 30-key and 56-key PEN\*KEY<sup>®</sup> Model 6210 Hand-Held Computers.

### ***ON Key***

Use the ON key to suspend or resume operation. The ON key does not completely “turn off” your hand-held computer but instead puts it in a suspend mode when you are not entering data. This allows you to save battery power.

### ***YES (Enter) Key***

Use the YES key to answer “Yes” to display prompts and to enter data.

### ***NO Key***

Use the NO key to answer “No” to display prompts.

### ***Period [.] Key***

Use the period [.] key as a period or a decimal point.

### ***Clear Key***

Use the Clear key to delete data being entered.

## ***Page Up or Down Keys***

Use the Page Up or Down keys to step forward or backward in your program.

## ***EXIT Key***

Use the Exit key to exit a program or portion of an application.

## ***Minus [-] Key***

Use the minus [-] key to enter negative values or dashes in character fields.

## ***Numeric Keys***

Use the numeric keys as you would those on a calculator. Numeric values are single keystroke operations.

## ***Alphabetic Keys***

Your hand-held computer provides the full alphabet for the 56 key keyboard. Alphabetic characters are single keystroke operations with the 56 key keyboard. Alphabetic characters can be entered on the 30 key keyboard by using the yellow shift key.

## ***Backspace [← SP] Key***

Use the backspace key to back the cursor up one character at a time. Holding this key down will cause the cursor to continuously move backwards until you stop or you run out of space to move.

## ***Shift Key***

Using the yellow shift key, temporarily shifts the function of the keyboard. The shifted functions are yellow colored legends above the normal single keystroke keys.

## ***Window Scrolling Arrows***

Use the window scrolling arrows to adjust the area of the screen that is visible. Pressing one of the arrows moves the display one row or column at a time until the arrow key is released. This allows you to pan across the entire virtual VGA screen.

## ***Display***

The display shows status messages, keyed-in entries, customer or product lists, calculations, and prompts for responses.

The optional touch screen can be used with a stylus pencil, or by using your finger to choose functions, accept signature capture, or enter data.

**B CAUTION:** Do not use an ink pen or anything else that is sharp on the touch screen. This will damage it.

## ***Backlight and Display Contrast Adjustment***

Your hand-held computer display contains a backlight for operating in dark conditions. Although it greatly improves operating in dark conditions it does shorten your battery run time. Your hand-held computer will shut the backlight off when there is no activity. Section 2 explains how to turn on the backlight and adjust the contrast of the display.

## ***Battery***

### ***Main Battery Pack***

This hand-held computer uses a rechargeable nickel cadmium (NiCd) battery pack.

Your hand-held computer senses the amount of capacity (run time) left in your main battery pack before it goes into a low battery condition. Your computer also senses if a rechargeable NiCd battery pack is present and automatically recharges it when it is placed in an external charging source.

This user's guide may occasionally use the term "cycles" when presenting rechargeable battery instructions. Cycles are the number of times the rechargeable battery pack can be drained, and recharged during the life of the battery. The rechargeable battery design should give you many cycles of use.

When you press the ON key to suspend operation, your hand-held computer does not completely turn itself off. The main battery pack is protecting data and if the pack is completely charged it will protect the data for about six days.

### ***Backup Battery***

When your hand-held computer goes into a shutdown mode because of low battery condition, the data is protected by

the backup battery. Your hand-held computer will not accept data or process transactions until you deal with the low battery condition. A fully charged backup battery will save data for about 30 hours.

Your hand-held computer contains a rechargeable NiCd backup battery. Most of the time the backup battery is in a rest mode, ready to take over data protection instantly when the main battery cells are in low condition or out of the hand-held computer.

If you are storing your hand-held computer for a long period remove all batteries. This will prevent any damage that could occur to your hand-held computer should the cells develop a leak.

## ***Memory***

This hand-held computer design uses these types of memory:

- " Main Memory DRAM
- " Flash ROM
- " EEPROM
- " PC Cards

### ***Main Memory***

Your main memory DRAM options available are 4, or 6 Megabytes. Main memory is ordered at the time this product was purchased. You can upgrade to more memory but you must send your hand-held computer to your Customer Support Center. The main memory requires batteries in your hand-held computer to protect it. This memory is protected by the backup battery during low main battery conditions or when the main battery pack is removed.

### ***Flash ROM***

Your hand-held computer has 512K, or 1M of flash ROM. This stores the BIOS and DOS firmware. Applications

stored in flash ROM are copied into DRAM for execution. Flash does not require a battery in your hand-held computer to maintain its contents.

### ***PC Cards***

Different brands of PC cards can be used in your hand-held computer. Memory cards are available in a variety of sizes and types. Check with your Sales Representative or System Engineer for specific options.

Your hand-held computer provides two PC memory card slots. These slots can be used for storage of data, much like a floppy disk drive on a PC. PC card slots can also be used for modems, radios, and other options as they become available.

You can use a Type II card in each drive at the same time. If using Type III card, it only works in drive A (closest to display). However, you can not use a Type III and a Type II card at the same time. Type III cards include some types of disk drives and radios.

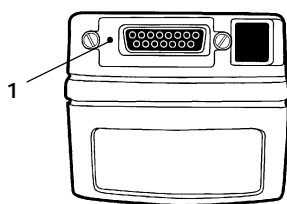
### ***Diagnostic***

The hand-held computer contains a 256 byte serial access EEPROM. This EEPROM is a nonvolatile storage place for system, service, and diagnostic information. This provides useful information to a Customer Support Specialist should your hand-held computer fail to operate.

## Reset Switch

In the rare event that your hand-held computer fails to respond to your input, it may be necessary to “reset.” Avoid overusing the reset switch as this increases the chances that data will be lost. Only use the reset switch as a last resort after trying all other solutions. Refer to the Troubleshooting Table in Section 4 and try those solutions before resetting your computer.

The Reset switch access is located behind the 15-pin connector. To access use a bent large paper clip, insert one end in the reset switch hole.



1. Reset switch location

*Figure 1-7*  
**Top End Reset Switch Access Point**

---

## Hand-Held Computer Specifications

<b>Size:</b>	9.575 inches (24.32 cm) long 3.312 inches (8.41 cm) wide 2.8 inches (7.11 cm) tall
<b>Temperature:</b>	
Operating:	4 to +140_F (-20 to +60_C)
Storage:	-22 to +158_F (-30 to +70_C )
<b>Weight:</b>	30 ounces (850.5 g)
<b>Humidity:</b>	5 to 90% noncondensing
<b>Static</b>	
<b>Protection:</b>	17 kV, (air discharge) 8 kV (direct injected)
<b>Power source:</b>	
Main battery:	NiCd battery pack
Backup battery:	Nickel cadmium (NiCd)
<b>Charging rate:</b>	
+32 to 104 °F (0 to +40 _C)	Normal charge main battery (fully charge ¶ 2.5 hours) backup battery charge time is ¶ 10 hours
Below 0_C:	Trickle charge
<b>Communication:</b>	
Interface:	RS-232 and RS-485 Ethernet ( <i>optional</i> ) IRDA ( <i>optional</i> )
Protocol:	Proprietary Communications Protocol (PCP), Xmodem, Ymodem

**System Components:**

**Flash EPROM:** 512K or 1 megabyte Flash array

**DRAM:** 4, or 6 megabytes

**Card Options:** Two PC memory card slots; one Type II, and one Type III, or both can use Type II cards

**Processor:** AM386SXLV, 3.3 volt, 25 Mhz.

**Display:**

Type: VGA compatible LCD (standard)  
touch screen (optional)

Size: 160 (wide) by 200 (long) pixel portrait orientation

## Section 2

# *Hand-Held Computer Operation*

---

### ***Introduction***

This section tells you how to:

- Install the main and backup batteries
- “Power-up” your hand-held computer
- Install optional memory cards
- Connect to peripheral devices

### ***Getting Started***

Unpack your PEN\*KEY<sup>®</sup> Model 6210 Hand-Held Computer and inspect it for signs of physical damage that may have occurred in shipment or storage.

Fully charge the batteries in your hand-held computer before using them. Put on a charging source for at least 10 hours to ensure that the backup battery and main battery pack are completely charged.

When you start using your hand-held computer or any time that all power has been completely removed, you are “cold booting” your hand-held computer. The method you use depends on your application.

For example you may download (transfer from the host computer to your hand-held computer) the application and data into your hand-held computer. Or, you may use PC

cards to load the application and data into your hand-held computer.

Depending on the method you are using, the result will be the same but the steps you go through may vary from the way this user's guide presents the material.

## Installing the Backup Battery

" **NOTE:** Backup battery must be installed before using your computer for the first time.

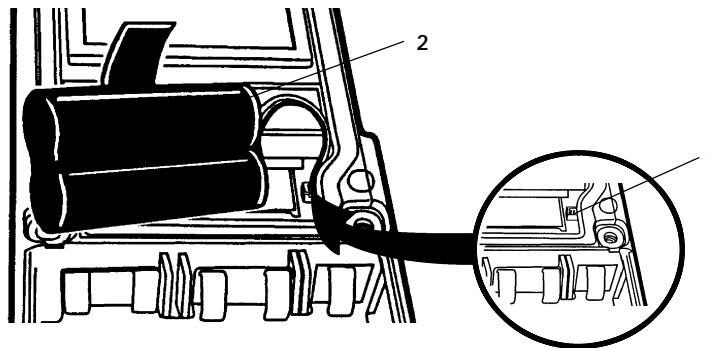
" **NOTE:** Remove backup battery before storing your computer for longer than a week.

Refer to Figure 1-2 for review if needed when completing steps 1 and 2.

1. Use a flat blade screwdriver to loosen the four quarter-turn screws of the PC memory card door.
2. Drape the door over the top or off to the side, free of the compartment.

Refer to Figure 2-1 when completing these steps.

3. Using a non-metallic object, such as a pen, push the connector on the battery pack down into the socket.
4. Replace PC memory card and back up battery compartment door.



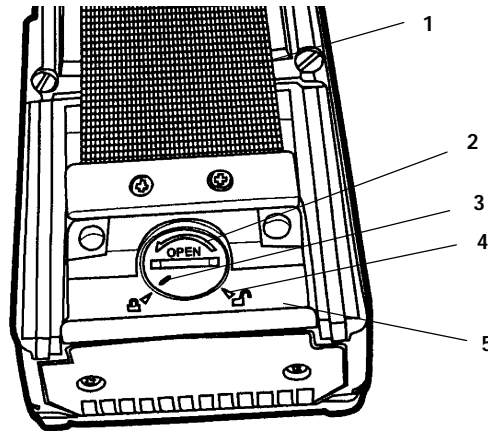
1. Keyed backup battery connector jack
2. Backup battery connected

Figure 2-1  
**Installing Back Up Battery**

## Main Battery Installation

1. Place your hand-held computer face down on a flat surface. Prop the top end up to avoid pressing any keys.
2. Open the battery compartment door by turning the latch knob that is attached to the handstrap in the direction of the arrow and to the position of the open padlock symbol. Use a flat blade screwdriver or the edge of a coin, to open the door.

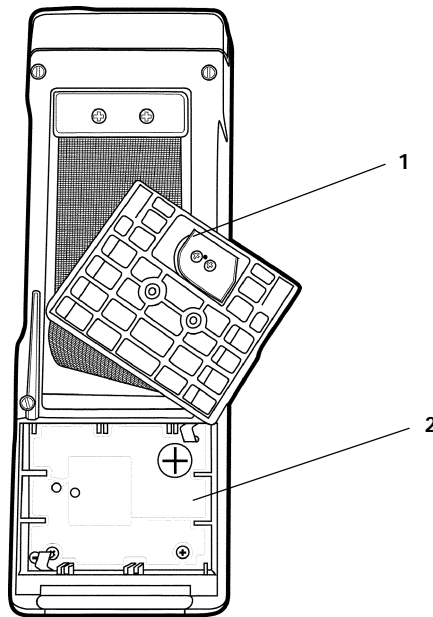
" **NOTE:** Use a screwdriver or coin that fits the slot properly. A correct fit prevents wear on the latch knob corners.



1. Handstrap
2. Latch knob, to open turn in direction of arrow
3. Latch knob position indicator
4. Open position indicator
5. Battery compartment door

*Figure 2-2*  
**Opening Battery Compartment**

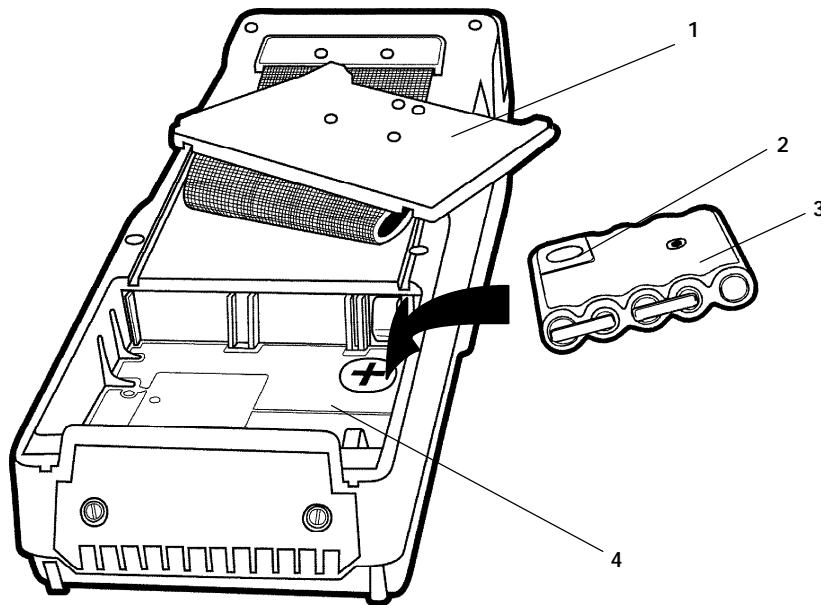
3. Grasp the handstrap near the latch knob. The compartment door is attached to the handstrap.
4. Pull the handstrap and battery compartment door down toward the bottom and lift the strap up, then away from the main battery compartment.



1. Battery compartment door
2. Main battery compartment

*Figure 2-3*  
**Moving Battery Compartment Door Out Of The Way**

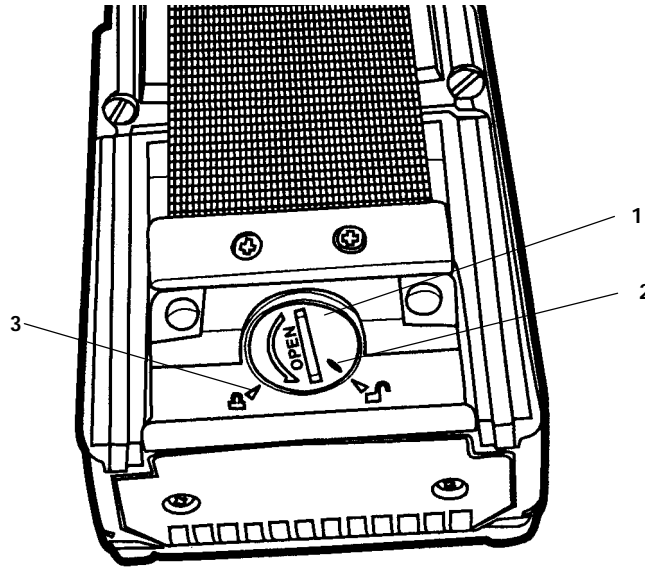
5. Hold the main battery pack with the exposed electrical contacts face down.
  - " The battery compartment contains a label showing the proper positioning of the pack with markings for placement of the positive and negative contacts.
6. Gently press the battery pack down into the compartment.



1. Main battery compartment door
2. Round surface contact
3. Main battery pack
4. Main battery compartment

*Figure 2-4*  
**Installing Rechargeable Main Battery Pack**

7. Reinstall the door. Turn the latch knob 1/4-turn clockwise (to line up with the closed padlock symbol) to lock it.



1. Latch knob, to close turn opposite the direction of the arrow
2. Latch knob position indicator
3. Closed position indicator

*Figure 2-5*  
**Closing Battery Compartment**

---

## ***Charging Your Batteries***

Fully charge the battery pack before using your hand-held computer for the first time. Initial charge time to completely charge the main battery pack and backup battery should be at least 10 hours. After the initial charge, charging time takes 2.5 hours for the main pack and about 10 hours for the backup battery.




You can charge your NiCd batteries either in your hand-held computer or in a stand alone charger. The following devices provide charging for the main and backup batteries while they are in the hand-held computer:

- " Multidock
- " Single dock
- " Printers
- " Wall charger
- " Many modems

---

## ***Turning On the Backlight and Adjusting the Display Contrast***

### ***Turning On the Backlight***

1. Press the yellow shift key and then the backlight [] key. The backlight default setting is for the maximum brightness.
2. To adjust the brightness of the backlight, press and hold the yellow shift key and then press and hold either the up [] or the down [] keys.

" **NOTE:** *There are 5 steps for the backlight brightness and 51 steps for the screen contrast.*

## ***Adjusting the Screen Contrast***

1. Press and hold the yellow shift key and then press and hold either the up [⬆] or down [⬇] contrast keys.
2. Continue to do this until you reach the contrast level you want.

---

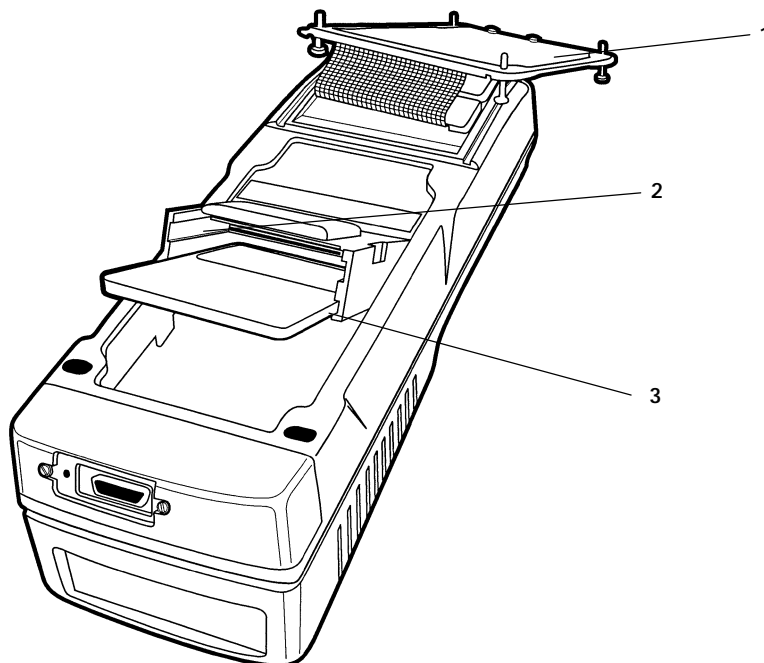
## ***Installing PC Cards***

1. Use a flat blade screwdriver to loosen the four quarter-turn screws of the PC card door (see Figure 2-6 on page 2-10).
2. Drape the door over the top or off to the side free of the compartment.
3. Flip the PC Card Holder up to gain access to the memory card slots.
4. Slide the card, connector-end first into the slot.

**" NOTE:**

*The PC cards are keyed to fit only one way. If they do not seat completely this indicates that it is installed upside down.*

5. Flip the holder back down into your hand-held computer.
6. Reinstall the compartment door.



1. PC memory card holder door loosened and flipped up over the end
2. Upper PC card slot (drive B) type II or type III cards
3. Lower PC card slot (drive A) type II or type III cards (graphic shows PC card in the lower slot)

*Figure 2-6*  
**Installing PC Cards**

If a “boot” card is inserted in the Type II slot, you must press the reset button (refer to page 1-16 before pushing the reset button) to perform a cold start.

## ***Removing PC Cards***

To remove a PC Card from the holder simply pull out on the card.

---

## ***Using PC Cards to Load Your Programs***

### ***Drives***

- " Drive A (slot) closest to display
- " Drive B (slot) towards back of hand-held computer
- " Drive C, RAM (if formatted)-power required to protect contents
- " Drive D, ROM files in flash-no power needed

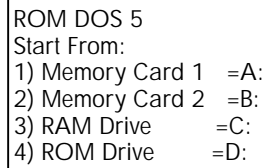
### ***Booting***

In order to boot your hand-held computer in this manner the card in the drive must be bootable. Your hand-held computer must be programmed to attempt to boot from either drive A or B.

### ***Booting From a Drive Other Than The Default***

1. Place the boot card in either drive A or B. If the card does not connect easily, remove the card, flip it over and try inserting it again.
2. Press the Reset switch (refer to page 1-16 for Reset Switch location).
3. When your hand-held computer starts clicking during its power up self test, press and hold down the **[F4]** key.

4. The hand-held computer should display:

A rectangular box containing the text of the ROM DOS 5 boot menu.

```
ROM DOS 5
Start From:
1) Memory Card 1  =A:
2) Memory Card 2  =B:
3) RAM Drive      =C:
4) ROM Drive      =D:
```

5. If your hand-held computer does not display this menu but continues to boot, reset and try again.

" **NOTE:** *This is the ROM DOS 5 boot menu. This menu allows you to boot directly from any of the four different drives (assuming that there is a card in that slot or that the RAM drive has been formatted.*

6. Choose the number that corresponds to the drive or card from which you wish to boot.

" **NOTE:** *You may only boot from a card that has been properly installed or a RAM drive that has been formatted and contains the proper programs.*

" **NOTE:** *For complete details regarding creating a "boot" card, refer to the instructions in the PEN\*KEY<sup>®</sup> Model 6200/6300 Hand-Held Computer Programmer's Reference Guide PN: 977-054-003.*

---

## ***Downloading Programs into Your Hand-Held Computer***

Using Utilities to download programs into your hand-held computer may require you placing your computer into a dock. You can also download using an optional internal modem.

Install and charge the main and backup batteries before downloading any programs.

1. Turn your hand-held computer on by pushing the ON button.
2. Insert your computer into the dock or connect the modem. The first screen you see will show you general information, program version, and copyright data.
3. Press the **[YES]** key and continue.
4. This next screen will follow:

UTILITIES LOAD PROGRAMS/DATA	
1. BEGIN COMM SESSION	
2. COM x-comm set -- x	
3. UNIT ID	ZZZZZZX
4. X -- mdm type -- x	
xprotx	sbpsx      xfx
5. PHONE NUMBER	
	ZZZZZZZZZZZZX
9. ADVANCED UTILITIES	
[NO]QUIT	

5. The default setting (BEGIN COMM SESSION) will be highlighted.
  - " If this is the setting you want press the **[YES]** key and continue.
  - " If you want to change the communications parameters to something other than the default:
    - " Press the number of the menu option you want, or
    - " Use the arrow keys to highlight the desired selection
6. Press the **[YES]** key.

At this point go to Appendix B for the Utilities Programs procedures.

## Section 3

# *Routine Care and Maintenance*

---

### *Introduction*

Your PEN\*KEY<sup>®</sup> Model 6210 Hand-Held Computer is designed to withstand normal use in harsh environments. Occasional maintenance is required to ensure trouble-free operation. The procedures in this section should help keep your hand-held computer in good working condition.

Maintenance procedures included in this section provides instructions on identifying Low Battery conditions, replacing the handstrap, and cleaning your hand-held computer.

---

### *Low Battery Indication*

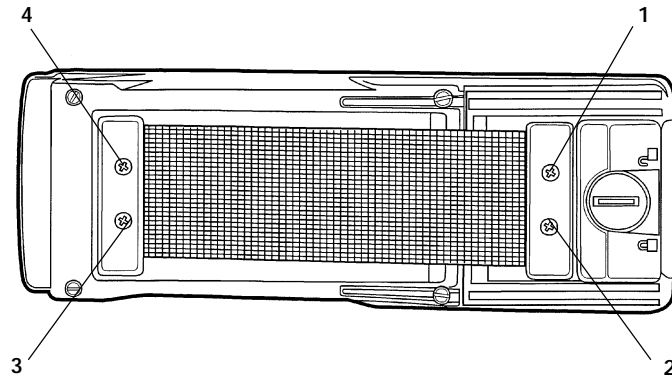
When you press the ON key to resume operation and it does not respond at all, this usually indicates a low main battery condition. If this occurs, press the ON key to suspend and then again to resume operation and listen for a series of three “beeps.” This signals that the main battery is too low to operate your hand-held computer. Just to be sure, though, insert your hand-held computer in a printer or other charging source and your hand-held computer will turn on.

If it does not respond when inserted in the equipment that provides charging, another problem could exist. Refer to the **Troubleshooting** section for solutions.

## ***Handstrap Replacement***

To replace the handstrap follow these steps.

1. Remove the top and bottom screws holding the handstrap into place.
2. Replace with a new handstrap and replace top and bottom screws.



1-4. Screws holding handstrap

*Figure 3-1*  
***Removing The Handstrap***

## ***Cleaning Your Hand-Held Computer***

Periodic cleaning helps maintain the appearance and reliability of your hand-held computer. When cleaning your hand-held computer, inspect the keyboard, handstrap, covers, display, connectors, and peripheral products for obvious signs of damage or wear.

**B CAUTION:** Do not use any abrasive cleaning compounds, ketonic solvents (acetone or ketone) or aromatic solvents (toluene or xylene) to clean any part of your hand-held computer. These solutions will cause permanent damage to your hand-held computer.

Never pour cleaners directly on the hand-held computer. Instead put the cleanser on a soft cloth and gently wipe the case.

### ***Case and Display***

Norand Corporation recommends cleaning the exterior of your hand-held computer using a soft cloth dampened with:

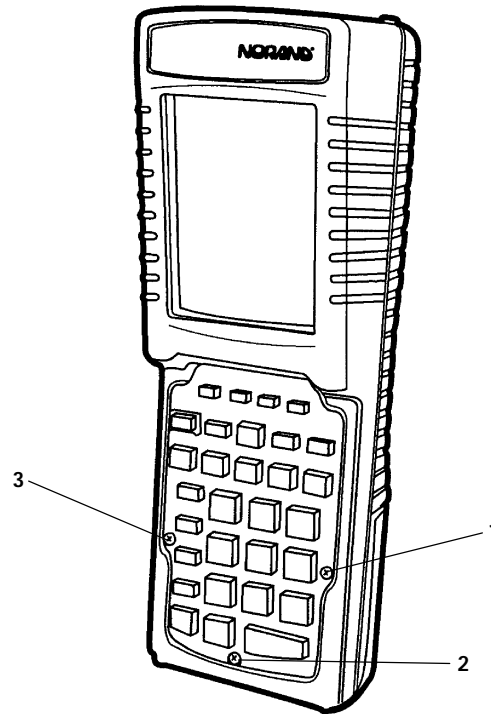
- " MICRO-CLEAN II cleanser, made by Foresight International, Inc. 4887 F Street, Omaha, NE 68127-0205 (telephone number 1-800-637-1344)
- " Glass cleaners or isopropyl alcohol

### ***Surface Connectors***

If surface connectors become dirty or tarnished, clean them with a cotton swab dipped in alcohol. It may also be necessary to lightly burnish them with a pencil eraser. Check the connectors on the docks or printers to ensure they are clean.

## Keyboard

If necessary, use a dry toothbrush to dislodge accumulated dust or grime around the keyboard keys. There are three screws used to secure the keyboard to the case. Unscrew those to remove the keyboard and do more cleaning if necessary.



1-3. Screws holding keyboard

*Figure 3-2*  
**Removing The Keyboard**

## Section 4

# *Troubleshooting*

---

---

### *Introduction*

Should you encounter difficulties in routine operation, printing, or communications, there are a few things you may be able to do to correct the problem.

- Refer to your applications (software user) manual for printing and telecommunication procedures.
- Ensure that electrical and mechanical connections are secure and undamaged.

## Troubleshooting Table

This Troubleshooting table lists conditions you might see and offers some basic remedies:

*Table 4-1*  
**Basic Troubleshooting**

<b>Condition</b>	<b>Solution</b>
<b>Low Battery</b>	Recharge main NiCd pack.
<b>When The ON Key Is Pressed The Display Is Blank.</b>	<p>Charge immediately! Data loss is imminent. If the application is displayed when charge is applied both the main and backup batteries were too low to run the computer but the data has been maintained.</p> <p>If your computer resets itself when charge is applied and returns to the Advanced Utilities program, the data was lost. Reload the application.</p>
<b>When The ON Key Is Pressed Computer Beeps One Time</b>	<p>One beep means the main pack is very low or has been removed. The data in your computer is being protected by the backup battery. The backup battery will provide protection for a maximum of 30 hours. Charge your computer for a minimum of two hours before using.</p>
<b>When The ON Key Is Pressed Computer Beeps Two Times</b>	<p>Two beeps means the backup battery is very low. Charge your computer immediately for at least 10 hours but it is better if you do the complete 14 hour recharge.</p> <p>If after charging for 14 hours, 2 beeps continue then replace or recondition the backup battery.</p>

*Table 4-1 continued*  
**Basic Troubleshooting**

<b>Condition</b>	<b>Solution</b>
<b>When The ON Key Is Pressed Computer Beeps Three Times</b>	Three beeps means that the main battery pack is low. Charge for a minimum of two hours before using.
<b>Batteries Won't Charge</b>	This problem can occur if the battery pack drops below a certain voltage, or if the reset switch is pressed when the main battery pack is very low. Do these two things: * Replace with new charged battery pack. * Reboot computer.
<b>Printer Not Ready</b>	* Check to make sure there is power to printer. * Check cable connections. * Check for paper jam. * Check to make sure there is paper in paper compartment.
<b>Will Not Turn On When The ON Key Is Pressed</b>	* Ensure that there is a main battery in. * Ensure that the main battery is charged. * Adjust contrast.

*Table 4-1 continued*  
**Basic Troubleshooting**

<b>Condition</b>	<b>Solution</b>
<b>The Charger LED Starts Blinking Red</b>	<p>*A determination can be made regarding the problem as a result of the sequence of red blinking. For example:</p> <ul style="list-style-type: none"> <li>* There may be a bad connection between the charger and the battery. Remove and re-insert the battery pack.</li> <li>* You can remove the battery pack from the charger and try charging it while in your hand-held computer.</li> <li>* It might be a defective battery pack. Return battery pack to Norand Customer Support Center.</li> </ul> <p>If these solutions fail, call a Norand Customer Support Center Specialist. Tell them the things you have tried and they can work with you to troubleshoot other solutions.</p>
<b>Hand-Held Computer will Not Turn On When Placed In A Dock</b>	<ul style="list-style-type: none"> <li>* Ensure the dock is plugged in.</li> <li>* Reseat hand-held computer into dock to ensure proper connection.</li> <li>* Adjust the contrast setting, it may be turned Off.</li> </ul>
<b>Hand-Held Computer Shuts Down During Use</b>	<ul style="list-style-type: none"> <li>* You may have a very low battery. Try recharging the main battery.</li> </ul>
<b>Hand-Held Computer Resets When You Replace Or Check The Main Battery</b>	<p>The backup battery may not be fully charged, allow 10 hours to completely recharge the backup battery.</p>

*Table 4-1 continued*  
**Basic Troubleshooting**

<b>Condition</b>	<b>Solution</b>
<b>Hand-Held Computer Goes To Sleep Immediately After It Has Been Removed From The Charger</b>	<ul style="list-style-type: none"> <li>* Ensure that the battery pack is installed properly in the battery compartment.</li> <li>* Ensure that none of the contacts in the battery compartment are bent.</li> <li>* Ensure that there is no foreign material (dust, dirt, or plastic shavings, etc.) on the battery pack or battery contacts.</li> <li>* Press the ON key. If your computer beeps one or three times, the battery still is low. Recharge for at least 30 minutes or try another battery pack.</li> </ul>
<b>Hand-Held Computer Does Not Suspend</b>	<ul style="list-style-type: none"> <li>* The unit will not turn off when it is connected to a charging device.</li> <li>* The unit may not turn off when it is processing data or in radio communications. This is OK if connected to a charger or placed in a dock. If this is not the case, and either of these conditions continues for a long period of time, contact Norand support personnel, as this will run down the batteries.</li> </ul>
<b>Hand-Held Computer Takes A Long Time To Boot Up After A Reset</b>	Normal time is between 30-45 seconds. If it takes longer than that, contact Norand support personnel.

*Table 4-1 continued*  
**Basic Troubleshooting**

<b>Condition</b>	<b>Solution</b>
<b>Hand-Held Computer Does Not Start Up</b>	<ul style="list-style-type: none"> <li>* Ensure that the battery pack is installed properly in the battery compartment.</li> <li>* Ensure that the battery compartment is operational (no bent contacts, no foreign materials, etc.).</li> <li>* Remove any PC cards and reset your computer. If your computer beeps after the reset but does nothing else, the flash may be corrupted. You will need a Master-Mode Boot card to reflash your computer.</li> </ul>
<b>Hand-Held Computer Displays A Bad Tcom Message</b>	<ul style="list-style-type: none"> <li>* The unit may not be making full contact with the dock. Try reseating the unit in the dock.</li> <li>* The dock may not be properly connected to the host. Make sure there is a connection. TCOM errors may happen when telephone service is lost, or for reasons not related to the physical connection.</li> </ul>

If these basic solutions do not solve your problem, there could be a number of reasons. Additional things to do are:

- " If you have available the Norand Error Codes Reference Guide (NPN: 979-000-001), check the Table of Contents for the problem you are having.
- " Refer to the software documentation written for your application. This documentation contains troubleshooting information.
- " Contact the Customer Support Specialist at your Norand Customer Service Center. Customer Support Center addresses and telephone numbers are printed on a Product Service Information card. This document is packed with all NORAND<sup>R</sup> products.

- " Call the Norand 24-hour Customer Response Hot-Line at 1-800-221-9236.

## ***When Your Hand-Held Computer Beeps***

Your hand-held computer signals you when immediate attention is needed regarding the main and backup batteries. You will hear none, one, two or three beeps. Each set of beeps has a different meaning and indicates a slightly different level of urgency.

### ***No Beep***

If you press the ON key and there is no display and no beeps, *charge immediately* because data loss is imminent.

- " If the application is displayed when charge is applied both the main and backup batteries are too low to run your computer but the data has been maintained.
- " If your computer resets when charge is applied and returns to the Advanced Utilities program, the data is lost. You will have to reload your application.

### ***One Beep***

The main battery pack is very low or has been removed from your computer. The data is being protected by the backup battery. The backup battery will provide protection for a maximum of 30 hours. Charge the main pack for a minimum of two hours before using.

### ***Two Beeps***

The backup battery is low. Charge your computer immediately for a minimum of 10 hours, but it is best to do a complete 14 hour recharge. If after completely recharging you continue to hear two beeps, then replace the backup battery.

### ***Three Beep***

The main battery pack is low. Charge the battery for a minimum of two hours before using.

### ***Additional Beeps***

Additional beeps and duration are designed into your hand-held computer, however, the purpose of those are more system oriented. These are detailed in the *PEN\*KEY<sup>®</sup> 6200/6300 Hand-Held Computer Programmer's Reference Guide* NPN: 977-054-003, in the Reference Section under Audible Error Codes.

### ***Diagnostic***

Your hand-held computer performs a power on self test whenever it is reset. It will alert you if it fails by beeping or displaying information about the problem. Your hand-held computer also contains some diagnostic data which may be useful for your Customer Support Specialist in helping define and debug a problem.

---

## ***Repair Service***

Be sure to carefully pack the unit and include a description of the problem and the measures you took to correct it.

If possible, include any printout (if applicable) or write down displayed error messages to illustrate the problem.

# Appendix A

## Connector Pin-Outs

---

### 15-Pin Female D-Sub Connector (standard)

<u>Pin</u>	<u>Signal</u>	<u>Function</u>
1	RI	RS-232 Ring Indicator
2	DTR	RS-232 Data Terminal Ready
3	RTS	RS-232 Request To Send
4	TXD	RS-232 Transmitted Data
5	RXD	RS-232 Received Data
6	CTS	RS-232 Clear To Send
7	DSR	RS-232 Data Set Ready
8	CHARGE_EXT	External Charge Voltage input
9	GND	Ground, Signal
10	DCD	RS-232 Data Carrier Detect
11	Not Used	
12	Not Used	
13	Not Used	
14	Not Used	
15	SW_V+	Switched 5.0 volt peripheral power

---

## 12-Pin Surface Contact Connector (standard)

<u>Pin</u>	<u>Signal</u>	<u>Function</u>
1	GND	Ground (rightmost side)
2	TPON	Ethernet Output
3	485- & TPOP	RS-485 I/O and Ethernet Output
4	TXD	RS-232 Transmitted Data
5	RTS	RS-232 Request To Send
6	DTR	RS-232 Data Terminal Ready
7	DSR	RS-232 Data Set Ready
8	CTS	RS-232 Clear To Send
9	RXD	RS-232 Received Data
10	485+ & TPIP	RS-485 I/O and Ethernet Input
11	TPIN	Ethernet Input
12	CHARGE_DOCK	Dock Charge Voltage (leftmost side)

---

## ***4-Pin RJ11 Connector (optional)***

<u>Pin</u>	<u>Signal</u>	<u>Function</u>
1	Not used	
2	TIP	Modem TIP
3	RING	Modem RING
4	Not used	



## Appendix B

# *PEN\*KEY<sup>R</sup> Utilities Program*

---

The PEN\*KEY<sup>R</sup> Utilities Program provides basic functions required to prepare your Hand-Held Computers for use.

---

### *Entry Point*



This screen appears after cold-booting the computer.

- " **Screen Title:** (dark bar at the top) contains the application name, such as "PEN\*KEY UTILITIES", and the specific screen name, such as "MODEM PARAMETERS."
  - " **Key Description:** (dark bar at the bottom) contains "action" keys. Movement keys, such as arrows, are not shown.
- 

### *Pop-Up Menus*

Pop-Up menus appear after a menu option. Press the number of an option you want to select; or press the **Y** or **B**

CHANGE UNIT ID	
UNIT ID	2233233
WORKGROUP	
6200IPL	
[F4]RESET FACTORY	
[NO]QUIT	

keys to scroll through the list and press the **[YES]** key to enter. Select one option each time.

Press the **[NO]** key to exit a pop-up menu.

---

## Drop-Down Lists

- |                   |
|-------------------|
| 1. NETWORK. . .   |
| 2. MODEM/DIRECT   |
| 3. ACCESSORY CARD |
| 4. HANDHELD       |
| 5. REMOTE OPS     |
| 6. INTERSERVER    |

Drop-down lists provide suboptions under a pop-up menu. Press the number of a suboption, or press the **Y** or **B** keys to scroll through the list and press the **[YES]** key to enter. Select one suboption each time.

Press the **[NO]** key to exit a drop-down list.

---

## Alphanumeric Fields

NETWORK PARAMETERS	
SERVER NAME	
I.U.N. INCORPORATED	
SERVER IP ADDRESS	
	123.123.123.123
CLIENT IP ADDRESS	
	123.123.123.123
ROUTER	
	0. 0. 0. 0
SUBNET MASK	
	0. 0. 0. 0
[NO]QUIT	

If your computer has a numeric keyboard, enter alphanumeric data by pressing the **A** and " keys to scroll back and forth through the set of alphanumeric characters. After a character is selected, press the **[YES]** key to enter that character. Press **[YES]** again to move to the next field.

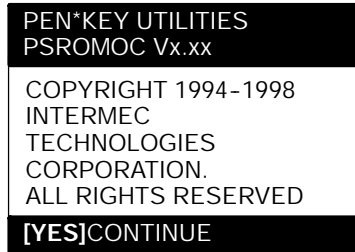
If your computer has an alphanumeric keyboard, press the characters, then press the **[YES]** key to move to the next field.

Press **[YES]** to save the entries and exit the menu. Press the **[NO]** key to exit without saving the entries.

---

## Title Screen

When you reboot or reset your computer, the Title Screen appears:



Press the **[YES]** key to continue.

---

## Language Selection

" **NOTE:** *The PEN\*KEY Utilities Program checks files for available language options. If no language resource files exist, you do **not** see this menu.*

If your application requires non-English languages, the Language Selection menu appears. English is the first option, followed by up to nine additional options:



```
PEN*KEY UTILITIES
LANGUAGE SELECTION

1. ENGLISH
2.
3.
4.
5.
6.
7.
8.
9.
0.

[NO]QUIT
```

Press the number of a language, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. Press the **[NO]** key to exit this menu.

---

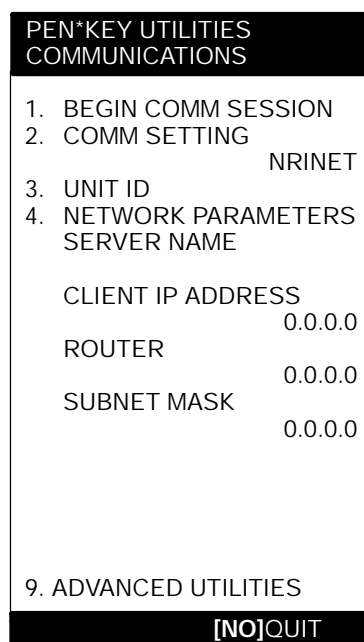
## Communications Menu

" **NOTE:**            *The default is the NPCP RS-485 communication.*

" **NOTE:**            *If your computer does not support any of the features listed, the following pop-up menu appears. Press the **[YES]** key to continue:*



The Communications Menu appears after the Title Screen:



## Option 1 BEGIN COMM SESSION

If you select this option, the computer repeats communications until successful or you press the **[NO]** key.

**" NOTE:**

*If you press the **[NO]** key, this verification window appears:*

ARE YOU SURE YOU WANT TO STOP COMMUNICATIONS NOW? <b>[YES]STOP</b> <b>[NO]RESUME</b>
---

**" NOTE:**

*This window may not appear immediately. For most communication settings, a session cannot be interrupted once it has started, so the **[NO]** key is not processed until the next session is attempted.*

**BEGIN COMM SESSION with NETWORK**

If you select this option and Option **2. COMM SETTINGS** is set to NETWORK, this Communication Status menu appears:

PEN*KEY UTILITIES COMMUNICATIONS	
COMM SETTINGS:	
NRINET	
SERVER NAME	
CLIENT IP ADDRESS	
	0.0.0.0
ROUTER	
	0.0.0.0
SIGNING ON	
STATUS:	20
[NO]STOP COMM	

While SIGNING ON is onscreen, STATUS: may appear with the status of the attempted connection. Refer to **Session Status** on page B-12 for meaning.

Following a successful session, PEN\*KEY Utilities executes the downloaded application. If the necessary program files are not found, this message window appears:

MISSING SYSTEM FILES
[YES]CONTINUE

If the session is unsuccessful, LAST SESSION appears with the failure status, such as “T803.”

PEN*KEY UTILITIES COMMUNICATIONS	
COMM SETTINGS:	
NRINET	
SERVER NAME	
CLIENT IP ADDRESS	
	0.0.0.0
ROUTER	
	0.0.0.0
SIGNING ON	
STATUS:	20
LAST SESSION T803	
INVALID HOST NAME	
OR IP ADDRESS	
[NO]STOP COMM	

**BEGIN COMM SESSION with MODEM/DIRECT**

If you select this option and Option **2. COMM SETTINGS** is set to MODEM/DIRECT, this Communication Status menu appears:

PEN*KEY UTILITIES COMMUNICATIONS	
COMM SETTINGS:	
MODEM/DIRECT	
MODEM TYPE	
NM2400/NM2400A	
PROTOCOL	BPS FMT
TTY	2400 8N1
AUTO ANSWER	NO
CONFIGURING	
LAST SESSION: T289	
NO RESPONSE FROM	
MODEM	
[NO]STOP COMM	

**" NOTE:**

*The computer may stay at the "CONFIGURING" screen for about 20 seconds if a modem is not detected.*

If the session is unsuccessful, LAST SESSION appears with the failure status, such as "T289."

***BEGIN COMM SESSION with ACCESSORY CARD***

If you select this option and Option **2. COMM SETTINGS** is set to ACCESSORY CARD, the system attempts to execute the application from a PC card. If the "MISSING SYSTEM FILES" message appears, press the **[YES]** key to continue.

***BEGIN COMM SESSION with INTERSERVER***

If you select this option and Option **2. COMM SETTINGS** is set to INTERSERVER, this Communication Status menu appears:



Press the **[NO]** key to exit this screen.

## Session Status

The first single character code ("T") is the session status, which applies to all COMM SETTINGS. There are five statuses possible:

- " **G**    Good session
- " **T**    Unexpected end of transmission
- " **H**    Incorrect file header encountered
- " **F**    File error encountered
- " **L**    Telecommunications aborted before first file header received

The three digit number ("289") indicates the specific protocol error. These error codes apply when COMM SETTINGS is set to NPCP RS-485 or NPCP RS-232:

- " **0**    No error
- 1**    MININET.EXE not installed
- 6**    User aborted communications by pressing **[NO]**
- 11**   Invalid parameter specified in control file

### " NOTE:

*The following values indicate an error returned by MININET.EXE. 100 is added to the error returned by MININET.EXE to avoid conflict with other defined errors.*

- 101**    Illegal buffer length
- 103**    Invalid command
- 105**    Command timed out
- 106**    Message incomplete
- 108**    Illegal local session number
- 109**    No resource available
- 110**    Session closed
- 111**    Command canceled
- 113**    Duplicate name in local name table
- 114**    Name table is full
- 115**    Name is deregistered, command complete
- 117**    Local session table full
- 118**    Session open rejected

<b>119</b>	Invalid name number
<b>120</b>	No answer
<b>121</b>	Name not found
<b>122</b>	Name in use on remote adapter
<b>123</b>	Name deleted
<b>124</b>	Session ended abnormally
<b>125</b>	Name conflict
<b>126</b>	Incompatible remote device
<b>133</b>	Network interface is busy
<b>134</b>	Too many commands outstanding
<b>135</b>	Invalid LAN adapter number
<b>136</b>	Command completed while cancel occurring
<b>138</b>	Command not valid to cancel
<b>164-179</b>	Unusual network condition
<b>180-354</b>	Adapter malfunction

These error codes apply when COMM SETTINGS is set to MODEM/DIRECT and PROTOCOL is set to TTY:

<b>0</b>	No error
<b>6</b>	<b>[NO]</b> key pressed, aborting communications
<b>11</b>	Invalid parameter specified in control file
<b>23</b>	End of transmission
<b>101</b>	Line lost
<b>102</b>	Parity error
<b>103</b>	Character gap too long
<b>104</b>	Data loss
<b>105</b>	Excessive NAKs (negative acknowledgements)
<b>106</b>	Block count error
<b>107</b>	Block check error
<b>108</b>	Block framing error
<b>109</b>	Control character error
<b>2xx</b>	Modem error
<b>xx</b>	Hayes response code, or code defined by program:
<b>03</b>	No carrier
<b>04</b>	Command not recognized
<b>06</b>	No dial tone
<b>07</b>	Dialed number is busy

- 08** No answer
- 86** Error sending command to modem
- 87** Expected numeric response not numeric
- 88** Invalid response format
- 89** No significant response from modem
- 97** COM port disabled by system due to low battery or removal of PC card modem.
- 98** Unrecognized English response
- 99** Memory allocation error

**" NOTE:**

*For response codes not listed above, if you purchased this modem from the Norand Mobile Systems Division of Intermec Technologies Corporation, contact our Customer Response Center at 1-800-221-9236.*

*If this modem is **not** from the Norand Mobile Systems Division, contact your modem supplier.*

These error codes apply when COMM SETTINGS is set to NOVELL NETWARE:

- 0** No error
- 6** User aborted communications by pressing **[NO]** key.
- 100** Connection to host failed. Verify network connection, verify that PENKEY login name exists on host.
- 101** Could not access include file. Verify existence of include file on host.
- 102** Could not allocate needed memory.

These error codes apply when COMM SETTINGS is set to NRINET:

- **0** No error
- 6** User aborted communications by pressing **[NO]** key.
- 800** PC TCP/IP kernel is missing.
- 801** Invalid client IP address. Make sure the entry for CLIENT IP ADDRESS is correct, or make sure the DHCP server is running.
- 802** Invalid Service or Service Type, or invalid port number.
- 803** Invalid host name or IP Address. Make sure the entry for SERVER NAME is correct, and that the server is running.
- 804** Could not create socket. Check all cables and network connections.
- 806** Block sent was incomplete or block received was incomplete.
- 807** Client and server negotiation failed.
- 808** Server specified an unsupported block size.
- 809** Invalid buffer pointer.
- 810** All server connections are already in use. Try again later.
- 811** Timeout while sending data. Connection to remote machine dropped. Make sure the host is still running, and check all cables and network connections.
- 812** Timeout while receiving data. Connection to remote machine dropped. Make sure the host is still running, and check all cables and network connections.
- 935** Operation would block.
- 939** Destination address required.
- 940** Message too long.
- 948** Address already in use.
- 950** Network is down.

- 951** Network is unreachable.
- 952** Network dropped connection or reset.
- 954** Connection reset by peer.
- 955** No buffer space available.
- 960** Connection timed out.
- 961** Connection refused.
- 962** Too many levels of symbolic links.
- 963** File name is too long.
- 964** Host is down.
- 965** Host is unreachable.
- 966** Directory not empty.

These error codes apply when COMM SETTINGS is set to TFTP:

- .. **0** No error.
- 1** TCP/IP kernel is not loaded.
- 6** User aborted communications by pressing **[NO]** key.
- 201** TFTP.EXE failed.
- 202** TFTP.EXE not found.
- 203** Unknown server.
- 204** Remote file name is invalid.
- 205** Local file name is invalid.
- 206** File not found on server.
- 207** Timeout.

## Option 2 COMM SETTING

If you select this option, the Communications Settings drop-down list appears:

- |   |
|---|
| 1. NETWORK. . .<br>2. MODEM/DIRECT<br>3. ACCESSORY CARD<br>4. HANDHELD<br>5. REMOTE OPS<br>6. INTERSERVER |
|---|

Press the number of a communications settings, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter.

### Suboption 1 NETWORK

If you select this suboption, a drop-down list appears with various networks:

- |   |
|---|
| 1. NETWORK. . .   |
| 1. NPCP RS485<br>2. NPCP RS232<br>3. NRINET<br>4. TFTP<br>5. NOVELL NETWARE |

Press the number of a network or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. The computer returns to the Communications Menu with the selected network assigned to Option **2. COMM SETTING**. See a sample menu on page B-6.

Press the **[NO]** key to exit this drop-down list. The computer takes you to the Communications Menu.

### ***Suboption 2 MODEM/DIRECT***

If you select this suboption, the computer returns to the Communications Menu with the MODEM/DIRECT option assigned to Option **2. COMM SETTING:**

PEN*KEY UTILITIES COMMUNICATIONS	
1.	BEGIN COMM SESSION
2.	COMM SETTING MODEM/DIRECT
3.	UNIT ID
4.	MODEM PARAMETERS MODEM TYPE NM2400/NM2400A PROTOCOL BPS FMT TTY 2400 8N1 AUTO ANSWER NO
5.	PHONE NUMBER 9...131369282
9.	ADVANCED UTILITIES

### ***Suboption 3 ACCESSORY CARD***

### ***Suboption 6 INTERSERVER***

If you select either of these suboptions, the computer returns to the Communications Menu with ACCESSORY CARD or INTERSERVER assigned to Option **2. COMM SETTING.**

[illegible]

### ***Suboption 4 HANDHELD***

### ***Suboption 5 REMOTE OPS***

These suboptions are not supported at this time.

## Option 3 UNIT ID

If you select this option, the Change Unit ID pop-up menu appears:

CHANGE UNIT ID	
UNIT ID	2233233
WORKGROUP	
6200IPL	
[F4]RESET FACTORY	
[NO]QUIT	

Enter up to eight characters to change the Unit ID. Use the [**←SP**] key to backspace and use the [**CLR**] to restore the previous ID. Press the [**YES**] key to save the new ID and return to the Communications Settings menu. Press the [**F4**] key to reset the ID to factory default. Press [**NO**] to exit this pop-up menu.

## Option 4 NETWORK PARAMETERS

Network Parameters appears as Option 4 when Option **2**. **COMM SETTINGS** is set to one of these three NETWORK options: NRINET, TFTP, or NOVELL NETWARE.

## NETWORK PARAMETERS with NRINET or TFTP

If you select this option and Option **2. COMM SETTINGS** is set to NRINET or TFTP, this Network Parameters pop-up menu appears:

NETWORK PARAMETERS	
SERVER NAME	
SERVER IP ADDRESS	
0.	0. 0. 0.
CLIENT IP ADDRESS	
0.	0. 0. 0.
ROUTER	
0.	0. 0. 0.
SUBNET MASK	
0.	0. 0. 0.
[NO]QUIT	

If you have an alphanumeric keyboard, press the characters to the host name, then press the **[YES]** key to save the entry and move to the next field.

If you have a numeric keyboard, use the **A** and **"** keys to scroll back and forth through the given set of alphanumeric characters. After a character is selected, press the **[YES]** key to enter that character. Press **[YES]** again to move to the next field. Press the **Y** or **B** keys to move between fields.

Press **[YES]** to save the entries and exit the Network Parameters menu. Press the **[NO]** key to exit without saving the entries.

## NETWORK PARAMETERS with NOVELL NETWARE

If you select this option and Option **2. COMM SETTINGS** is set to NOVELL NETWARE, this frame type drop-down list appears:

1. 802.2
  2. ETHERNET II
  3. 802.3 RAW
  4. 802.2 W/ SNAP

Press the number of a frame type, or press the **Y** or **B** keys to scroll through the list and press the **[YES]** key to enter. Press the **[NO]** key to exit this drop-down list without changing the frame type.

## Option 4 MODEM PARAMETERS

Modem Parameters appears as Option 4 when Option **2. COMM SETTINGS** is set to MODEM/DIRECT.

If you select this option, the Modem Parameters pop-up menu appears.

**MODEM PARAMETERS**

1. MODEM TYPE  
   NM2400/NM2400A
2. PROTOCOL     TTY
3. BPS RATE     2400
4. DATA FORMAT 8N1
5. AUTO ANSWER NO

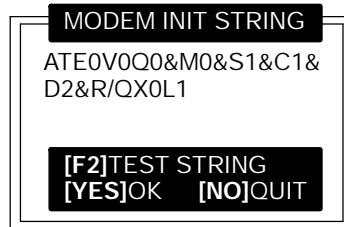
**[NO]DONE**

Press the number of a modem parameters option, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** button to enter.

### Suboption 1 MODEM TYPE

If you select this suboption, a drop-down list appears with supported modem types. Press the **Y** or **B** keys to scroll through the list, then press the **[YES]** button to enter.

- " If you select drop-option **OTHER EXTERNAL** or **OTHER INTERNAL**, the Modem Init String pop-up menu appears:



MODEM INIT STRING

ATE0V0Q0&M0&S1&C1&  
D2&R/QX0L1

[F2]TEST STRING  
[YES]OK [NO]QUIT

- a. Enter the initialization string of the modem you are using. Refer to your modem's reference manual for information.

" **NOTE:** Use **A** and " keys on numeric keyboards to scroll the alphanumeric character set.

" **NOTE:** If you leave this menu blank, a string is not saved.

- b. Press the **[YES]** key to enter the string or press **[NO]** to exit this pop-up menu.

" **NOTE:** *Testing the modem initialization string is optional.*

" To test the modem string, do the following:

- a. Press the **[F2]** key. The computer replies with "PLEASE WAIT" and tests the string:

**MODEM INIT STRING**

ATE0V0Q0&M0&S1&C1&  
D2&R/QX0L1  
PLEASE WAIT . . .

**[F2]TEST STRING**  
**[YES]OK [NO]QUIT**

Momentarily, the computer displays the modem's response:

**MODEM INIT STRING**

ATE0V0Q0&M0&S1&C1&  
D2&R/QX0L1  
RESULT: 97

**[F2]TEST STRING**  
**[YES]OK [NO]QUIT**

" **NOTE:** *Zero indicates the modem was successfully configured. Any other value indicates an error. See page B-13 for a list of modem errors. If you purchased this modem from the Norand Mobile Systems Division, contact our Customer Response Center at 1-800-221-9236.*

*If this modem is **not** from the Norand Mobile Systems Division, contact your modem supplier.*

- b. Press the **[YES]** key to update the modem initialization string. The computer returns to the Modem Parameters pop-up menu with OTHER EXTERNAL or OTHER INTERNAL assigned.

### ***Suboption 2 PROTOCOL***

If you select this suboption, a drop-down list of various protocols appears:

- |           |
|-----------|
| 1. TTY    |
| 2. YMODEM |

Press the number of a protocol, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. The computer returns to the Modem Parameters pop-up menu with the selected protocol assigned.

Press the **[NO]** key to exit this drop-down list.

### ***Suboption 3 BPS RATE***

If you select this suboption, the BPS Rate drop-down list appears with various bits per second (BPS) rates:

- |    |        |
|----|--------|
| 1. | 1200   |
| 2. | 2400   |
| 3. | 4800   |
| 4. | 9600   |
| 5. | 19200  |
| 6. | 38400  |
| 7. | 57600  |
| 8. | 115200 |

Press the number of a BPS rate, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. The computer returns to the Modem Parameters pop-up menu with the selected BPS rate assigned.

Press the **[NO]** key to exit this drop-down list.

### ***Suboption 4 DATA FORMAT***

If you select this suboption, the Data Format drop-down list appears:

1. 8N1
2. 7E1

Press the number of a data format, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. The computer returns to the Modem Parameters pop-up menu with the selected data format assigned.

Press the **[NO]** key to exit this drop-down list.

### ***Suboption 5 AUTO ANSWER***

This suboption is not supported at this time.

## ***Option 5 NETWORK INTERFACE***

Network Interface appears as Option 5 when Option **2. COMM SETTINGS** is set to NRINET, TFTP, or NOVELL NETWARE.

If you select this option, the Network Interface drop-down list appears:

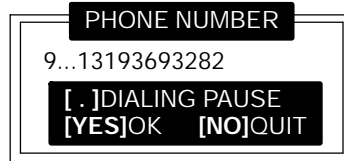
1. ETHERNET
2. RS485

Press the number of a network interface, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. The computer returns to the Communications menu with the selected network interface assigned.

## Option 5 PHONE NUMBER

Phone Number appears as Option 5 when Option **2. COMM SETTINGS** is set to MODEM/DIRECT.

If you select this option, the Phone Number pop-up menu appears:



PHONE NUMBER

9...13193693282

[.] DIALING PAUSE  
[YES]OK [NO]QUIT

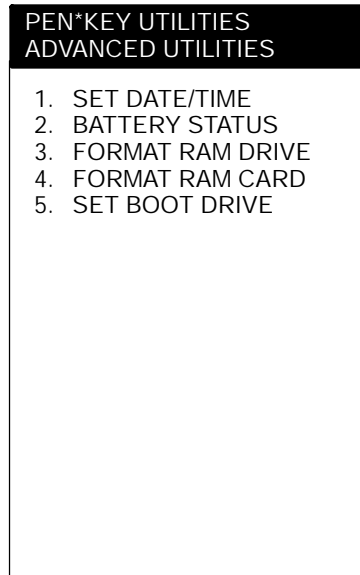
Enter up to 16 characters. Use the [**←SP**] key to back-space; use the [**CLR**] to reset to the previous phone number, and press [**.**] to insert a dialing pause command (",").

Press the [**YES**] key to save the new phone number and return to the Communications Settings menu.

Press the [**NO**] key to exit this pop-up menu.

## Option 9 ADVANCED UTILITIES

If you select this option, the Advanced Utilities menu appears:



Press the number of an advanced utility option, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter.

**" NOTE:**

*Suboption 4 FORMAT RAM CARD appears only if the FORMAT.COM program is in the PATH. The 6200 512 KB flash does not contain FORMAT.COM.*

### Suboption 1 SET DATE/TIME

If you select this suboption, the Set Date/Time pop-up menu appears:

SET DATE/TIME	
DATE:	01/20/80
TIME:	23:12:04
[NO]QUIT	

Enter numbers for the month, day, year (1980–2079), hour, minute, and second (up to 23:59:59). Press the **[YES]** key after each entry. An incorrect entry causes the computer to default to the initial number. Press the **[NO]** key to exit this pop-up menu.

### Suboption 2 BATTERY STATUS

Use this suboption to check battery status, and for 6210 Computers, to condition these batteries. The Battery Status screen appears when you select this suboption:

PEN*KEY UTILITIES BATTERY STATUS	
MAIN PACK	CHARGING
VOLTAGE	7.37
LAST COND	10/10/96
CAPACITY	23:59
BACKUP	
VOLTAGE	2.94
LAST COND	10/10/96
CAPACITY	23:59
CHARGER	16.22
[F2]CONDITION BATT	
[NO]QUIT	

- " **MAIN PACK:** Status of the main battery pack:
  - " **"OK"** Battery operating properly.
  - " **"LOW"** Power running low, needs recharging.
  - " **"CRITICAL"** Power dangerously low, recharge soon or lose all data.
  - " **"CHARGING"** Main battery pack recharging.
  - " **"MISSING"** Main battery pack not loaded or detected.
- " **VOLTAGE:** Amount of operational battery voltage.
- " **LAST COND:** Date when battery was last conditioned. "??/??/??" if unknown.
- " **CAPACITY:** Estimated time battery is operational after complete charge. "?:?" if unknown.
- " **CHARGER:** Amount of voltage supplied by external charge source.

To start a conditioning cycle for the 6210 Computer main battery pack or backup battery, press **[F2]** to access this list:

1. MAIN PACK  
2. BACKUP  

[NO]QUIT

- " **NOTE:** *Batteries can be conditioned only on 6210 Computers. The 6200 Computer cannot condition batteries.*

Select option 1. MAIN PACK to condition the main battery pack; or select option 2. BACKUP to condition the backup battery. The Battery Conditioning screen appears with the status of the battery selected:

PEN*KEY UTILITIES BATTERY CONDITIONING	
MAIN PACK	
VOLTAGE	9.99
DISCHARGING	23:59
NO ERRORS	

- “ **DISCHARGING:** The displayed time is the elapsed time in the current conditioning state, *not* the total conditioning time. Elapsed time is tracked only until conditioning is complete or has failed. The following conditioning states may be displayed:
  - “ **INITIALIZING**” System is initializing
  - “ **DISCHARGING**” Battery is discharging
  - “ **CHARGING**” Battery is charging
  - “ **COMPLETE**” Battery conditioning complete
  - “ **FAILED**” Battery conditioning failed

- " **NO ERRORS** The status of the battery conditioning cycle. If the battery conditioning fails, one of the following messages appears:

- " **"OLD POWER SUPPLY NOT SUPPORTED"**
- " **"CANNOT CONDITION BOTH MAIN AND BKUP"**
- " **"CHARGE LOST DURING CONDITION CYCLE"**
- " **"CHARGE NOT ENABLED"**
- " **"TEMPERATURE TOO HOT OR COLD"**
- " **"POWER FAILURE"**
- " **"SYSTEM SUSPENDED"**
- " **"NO BATTERY"**
- " **"INIT FAILED NOT SUPPORTED"**
- " **"ERROR #NNN"**

Unknown error code *nnn* occurred.

- " **NOTE:** *[YES] CONTINUE* does not appear until the conditioning cycle is complete.

#### **Menu Option 1 MAIN PACK**

- " **NOTE:** *The main battery pack conditioning cycle takes up to 12 hours to complete.*

A condition cycle cannot be stopped by any means except when the charge is removed or when there is a power failure.

### **Menu Option 2 BACKUP**

**" NOTE:**

*The backup battery conditioning cycle takes up to 22.5 hours to complete when the backup battery is fully charged at the beginning of the cycle.*

Backup battery conditioning is only available on 62XX Systems with the new power supply.

A condition cycle cannot be stopped by any means except removing the charge, when there is a power failure, or in extreme temperatures. Conditioning is not allowed and is stopped when area temperatures fall below 0° C (32° F) or rise above 40° C (104° F).

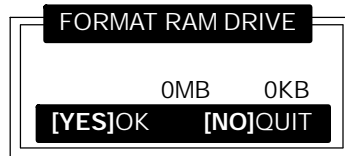
#### **Considerations**

As battery conditioning removes charge from the batteries, take care to keep the computer on charge once you start a conditioning cycle or if a condition cycle stops due to error. If the computer is removed from charge during a condition cycle, the computer may suffer data loss or reset itself depending on the battery condition. Also, as the state of the batteries is unknown, improper functioning of the backup battery system may occur and result in improper computer behavior and data loss if the computer is used for data processing purposes before the batteries can be fully recharged. Due to the risk involved in conditioning, remove important data from the computer before you start a condition cycle. If anything goes wrong, this data can be restored.

If errors are reported during the condition cycle, the condition cycle terminates. If this occurs, the battery being conditioned should charge completely or replaced with a charged battery before you use it. It takes two hours for the main battery to charge and 12.5 hours for the backup battery to charge. To reduce chances of condition cycle errors, keep the computer on charge until the cycle is complete and only cycle the batteries in temperatures below 30° C (86° F).

### Suboption 3 FORMAT RAM DRIVE

If you select this suboption, the Format RAM Drive pop-up menu appears:



FORMAT RAM DRIVE

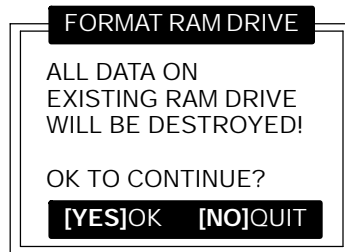
0MB 0KB

[YES]OK [NO]QUIT

Enter the total MB and KB for the RAM drive.

**NOTE:** *A zero in both fields deletes the RAM drive.*

Press the **[YES]** key after each entry. A pop-up verification appears:



FORMAT RAM DRIVE

ALL DATA ON  
EXISTING RAM DRIVE  
WILL BE DESTROYED!

OK TO CONTINUE?

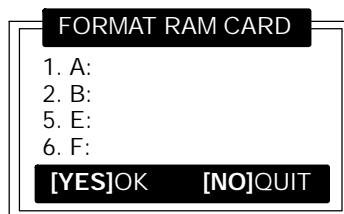
[YES]OK [NO]QUIT

Press the **[YES]** key to continue. Press the **[NO]** key to exit the menu.

### Suboption 4 FORMAT RAM CARD

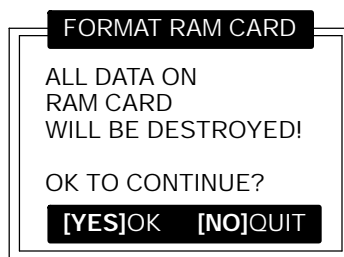
" **NOTE:** *This suboption appears only if the FORMAT.COM program is in the PATH. The 512KB flash does not include FORMAT.COM.*

If you select this suboption, the Format RAM Card pop-up menu appears:



" **NOTE:** *If the computer was booted from a RAM card drive, that drive is not displayed in the menu.*

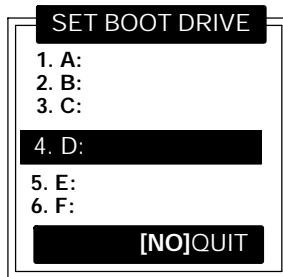
Press the number of the RAM card drive, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. A pop-up verification window appears:



Press the **[YES]** key to continue. Press the **[NO]** key to exit the menu.

### ***Suboption 5 SET BOOT DRIVE***

If you select this suboption, the Set Boot Drive pop-up menu appears:



**NOTE:** *The current default drive is highlighted in this menu.*

Press the number of a boot drive, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. The computer returns to the Advanced Utilities menu.

Press the **[NO]** key to exit this pop-up menu.

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