



6220 Hand-Held Computer
USER'S GUIDE

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Intermec Technologies Corporation
Publications Department
550 Second Street SE
Cedar Rapids, IA 52401

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GLOSSARY**INDEX**

Section 1

General Information

About this User's Guide

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

Section 1

Contains general information about the components of your 6220 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 in-

formation 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 for your system administration people when defining and setting parameters to support your application.

Unpacking and Inspecting

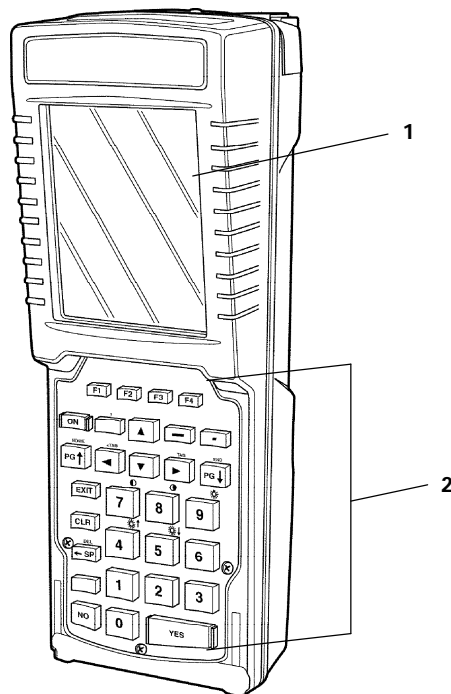
The following procedures explain what to do when your hand-held computer arrives, and what to do if it has been damaged in shipping:

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.

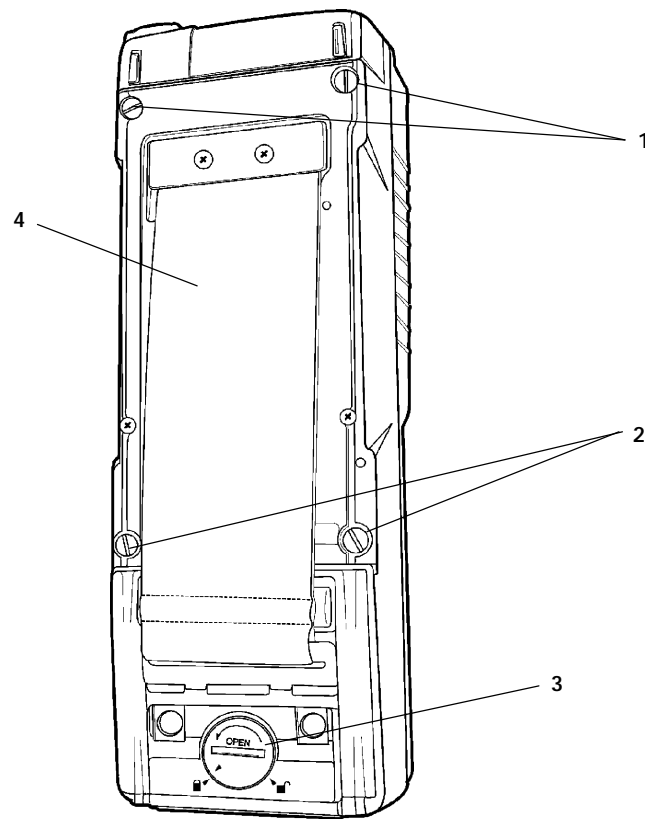
Hand-Held Computer Description

Figure 1-1 and Figure 1-2 on pages 1-3 and 1-4 show you the location of the key components for your hand-held computer.



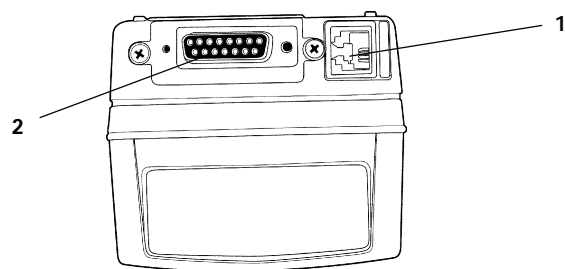
- 1. Display
- 2. Keyboard

Figure 1-1
Hand-Held Computer Front View



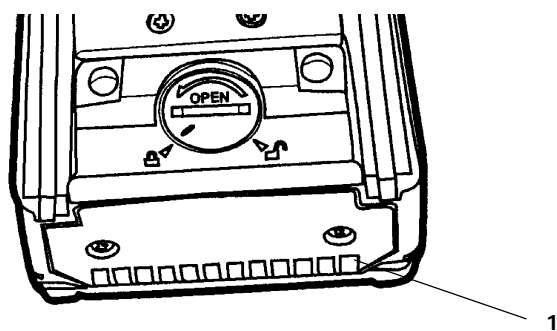
1. PC card and backup battery retaining door (top screws)
2. PC card and backup battery retaining door (bottom screws)
3. Main battery pack compartment latch knob
4. Handstrap

Figure 1-2
Hand-Held Computer Back View



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

Figure 1-3
Hand-Held Computer Top View



- 1. 12-pin surface contact connector

Figure 1-4
Hand-Held Computer Bottom View

Hand-Held Computer Keyboard

Your hand-held computer provides two different keyboard options. Both keyboard models provide special function keys that can be reprogrammed to meet your particular application needs. Figure 1-5 on page 1-7 and Figure 1-6 on page 1-8 detail the 30 and 56 key keyboards.

- For the 30 key keyboard, function and numeric keys are single keystrokes.
- For the 56 key keyboard, alphabetical characters and numeric keys are single keystrokes. .
- Shown below are the keyboard descriptions that describe the callouts for Figure 1-5 and Figure 1-6.

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
13. Space key

Key Descriptions (56 Key)

1. Function (F1-F4) keys
2. Alphabetic keys
3. Window scrolling keys
4. Page down key
5. Numeric keys (0-9)
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

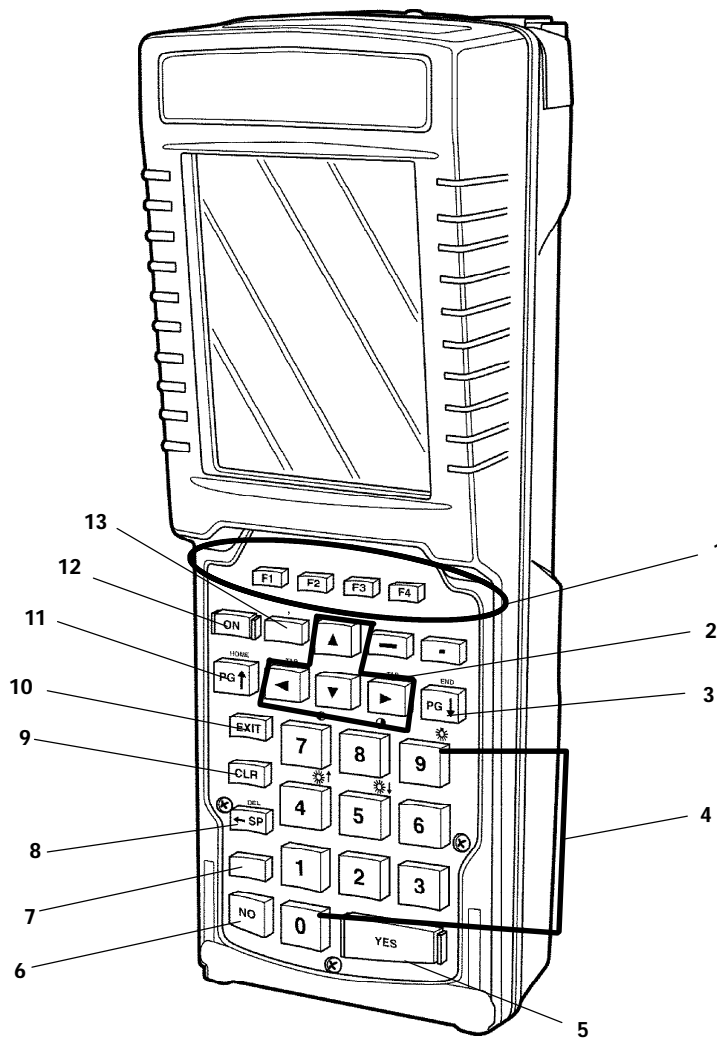


Figure 1-5
Hand-Held Computer With 30-Key Keyboard

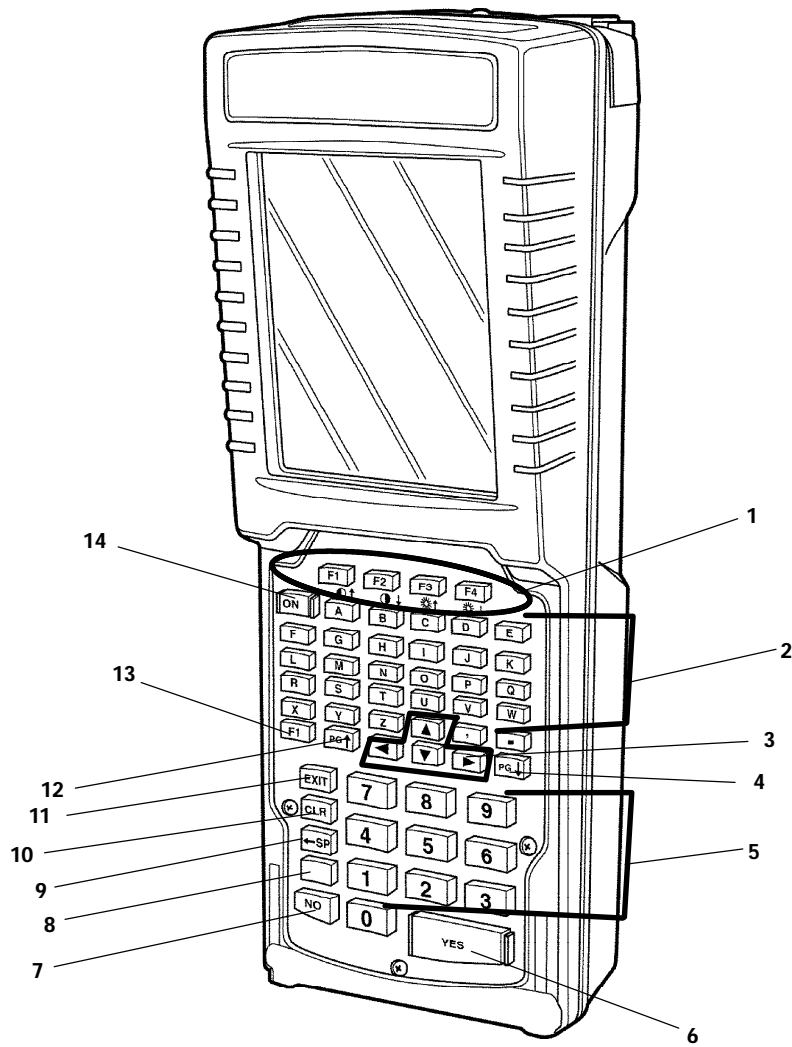


Figure 1-6
Hand-Held Computer With 56-Key Keyboard

Key Descriptions

This section describes 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 options 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 6220 Hand-Held Computers.

ON Key

Use the ON key to suspend or resume operation. The ON key, does not really “turn it on” because your computer is not really Off. It is just in a suspend mode to conserve 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 56 key hand-held computer provides the full alphabet. Alphabetic characters are single keystroke operations with this 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.

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.

Arrow Keys

The arrow keys move the cursor in the direction of the arrow.

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 lithium ion (Li Ion) battery pack.

Your hand-held computer senses the capacity (run time) left in your main battery pack before it goes into a low battery condition.

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 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 10 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
- PC Cards

Main Memory

Your main memory DRAM options are 8 or 16 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 2 MB 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.

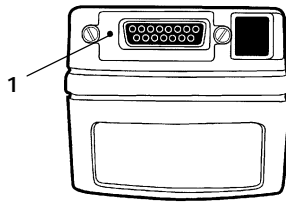
Your hand-held computer provides two PC memory card slots. These slots can be used for storage of data, much like a floppy disk drive on a PC. PC card slots can also be used for modems, radios, and other options as they become available.

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

Reset Switch

In the rare event that your hand-held computer fails to respond to your input, it may be necessary to “reset.” Avoid using the reset switch as this increases the chances that data will be lost. Only use the reset switch 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 straightened 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

Size:	9.5 inches (24.13 cm) long 3.25 inches (8.26 cm) wide 2.875 inches (7.30 cm) tall
Temperature:	
Operating:	4 to +140_F (-20 to +60_C)
Storage:	-22 to +158_F (-30 to +70_C) excluding batteries -4 to + 140_ F (-20 to + 60_ C) with batteries
Weight:	30 ounces (850.5 g)
Humidity:	5 to 95% noncondensing
Static	
Protection:	17 kV, (air discharge) 8 kV (direct injected)
Power source:	
Main battery:	Li Ion battery pack
Backup battery:	Nickel cadmium (NiCd)
Charging rate:	
+32 to 122° F (0 to +50_C)	Normal charge main battery (fully charge ¶ 2.5 hours) backup battery charge time is ¶ 10 hours
Below 0_C:	Trickle charge
Communication:	
Interface:	RS-232 and RS-485 Ethernet (<i>optional</i>) IRDA (<i>optional</i>)
Protocol:	Norand Proprietary Communications Protocol (NPCP), Xmodem, Ymodem

System Components:**Flash:** 2048 KB**DRAM:** 8 or 16 MB**Card Options:** Two PC memory card slots; one Type II, and one Type III, or both can use Type II cards**Processor:** AMD Elan SC400, 99 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 6220 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 the computer 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. Or, you may use PC cards to load the application and data.

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 when completing steps 1 and 2.

1. Use a flat blade screwdriver to loosen the four quarter-turn screws of the PC Card and Backup Battery Door.
2. Drape the door off to the side free of the compartment.

Refer to Figure 2-1 when completing these steps.

3. Using a nonmetallic object (i.e. pen) push the connector on the battery pack down into the socket.
4. Push the battery down into the compartment
5. Replace compartment door.

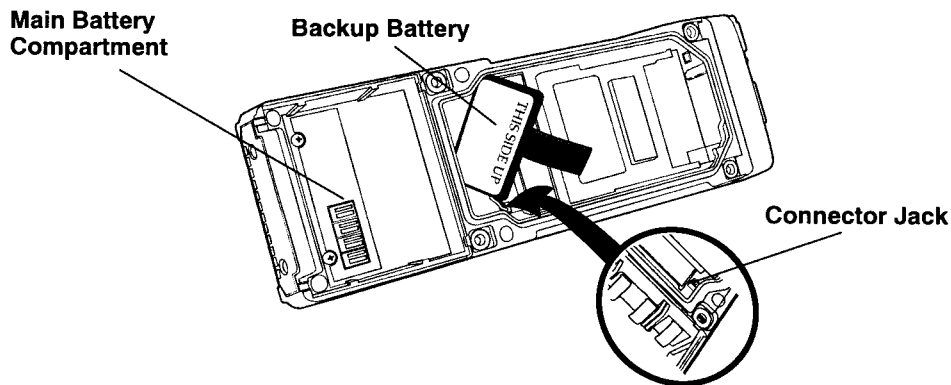
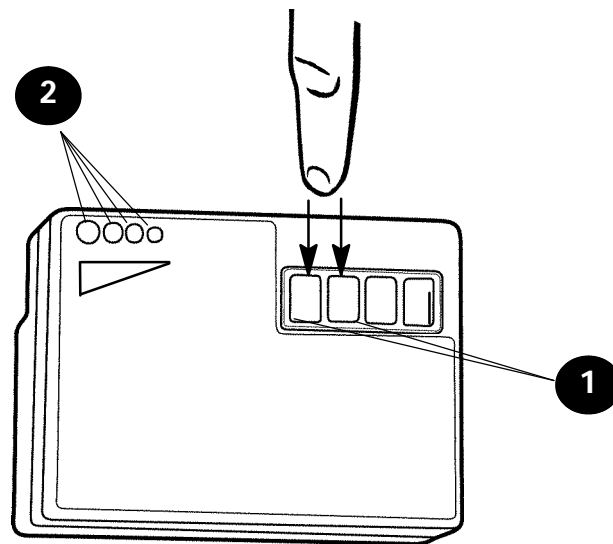


Figure 2-1
Installing Back Up Battery

Measuring Battery Pack Capacity



1. Touch finger across first two contacts
2. Capacity is displayed from right to left.
The higher the capacity the more LEDs light.

● = LED on
○ = LED off



one LED = less than 25% capacity;



two LEDs = 25-50% capacity;



three LEDs = 50-75% capacity;



four LEDs = more than 75%

Figure 2-2
Main Battery Pack Capacity Contacts

Main Battery Installation

Place your hand-held computer face down on a flat surface. Prop the top end up to avoid pressing any keys.

1. Use a flat blade screwdriver or a coin to turn the latch in the direction of the open padlock icon.
2. Take hold of the handstrap near the compartment door and slide down toward the end of the computer
3. Lift the strap and door away from the compartment.
4. Hold the battery pack with the contacts face down and install the battery pack into the compartment.
5. Reinstall the batter compartment door and turn the latch to line up with the closed padlock icon.
6. Fully charge your hand-held computer before using it. The initial charge should be at least 10 hours to ensure that both the main and backup batteries are fully charged.

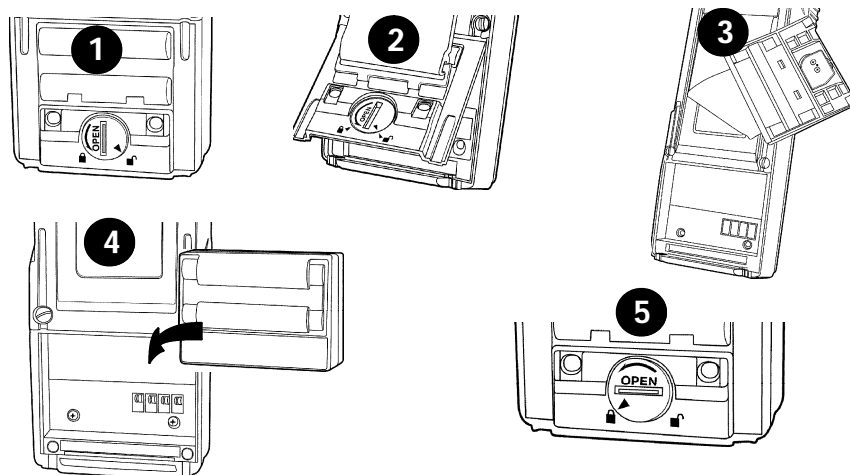


Figure 2-3
Installing Main Battery Pack

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

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

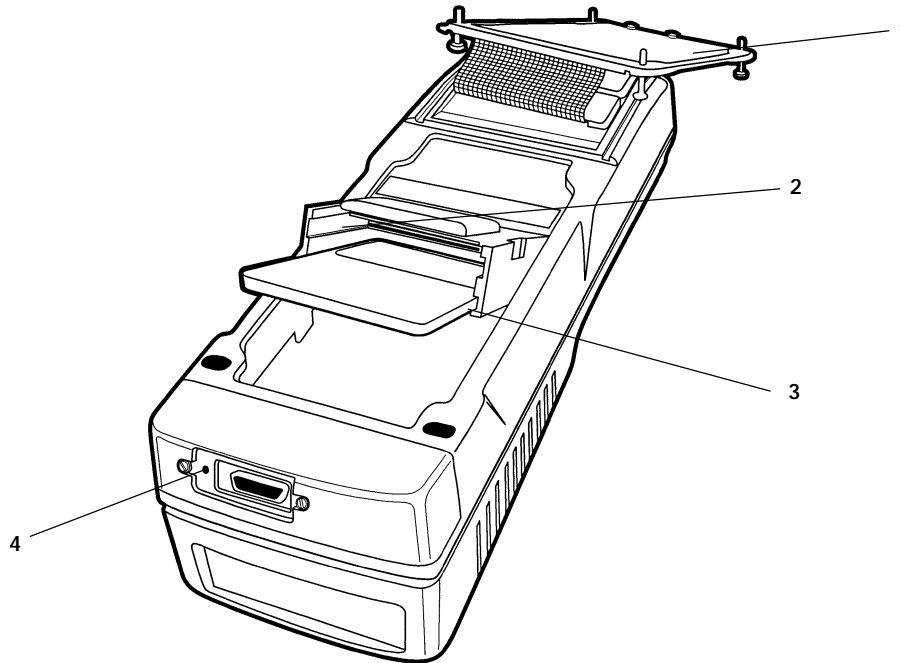
1. Use a flat blade screwdriver to loosen the four quarter-turn screws of the PC card door (see Figure 2-4 on page 2-8).
2. Drape the door off to the side of the compartment.
3. Flip the card holder up to gain access to the card slots.
4. Slide the card, connector-end first into the slot.

NOTE: *You can use either Type II or Type III cards. However, if you are using both a Type II and a Type III card, then the Type II card must go in the bottom slot and the Type III in the top 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 the compartment and reinstall the compartment door.

When a “boot” card is inserted, you must press the reset button to get your computer to recognize the card in the drive. To reset insert a straightened paper clip into the switch hole.



1. Compartment door
2. Top card slot
3. Bottom card slot (shown with Type II PC card in slot)
4. Reset button

Figure 2-4
Installing PC Cards

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 C, DOS system ATA card
- " Drive E, Non-system ATA card
- " Drive C, RAM (if formatted)—power required to protect contents
- " Drive D, ROM files in flash—no power needed

Using ATA Cards to Boot Your Computer

Booting

In order to boot your hand-held computer using an ATA card, the card in the drive must be formatted. If the ATA card is formatted as a DOS system ATA, it will boot as drive C. Otherwise, use Pen*Key Utilities to select drive E as your boot drive.

If you have selected a boot drive such as C or E that no longer should be selected as the boot drive, press and hold F4 while you reset your computer. You will then boot to drive D, Pen*Key Utilities can then be used to select a different boot drive if necessary.

Installing Modem Card

1. Use a flat blade screwdriver to loosen the four quarter-turn screws of the PC card door (see Figure 2-4 on page 2-8).
2. Drape the door off to the side of the compartment.
3. Flip the card holder up to gain access to the card slots.
4. Slide the modem card, connector-end first into the slot.

NOTE:

The modem card is keyed to fit only one way. If they do not seat completely this indicates that it is installed upside down.

5. Connect the modem cable to the card and plug into the connector (see Figure 2-5).
6. Push the card holder back down into your computer and reattach the card door.

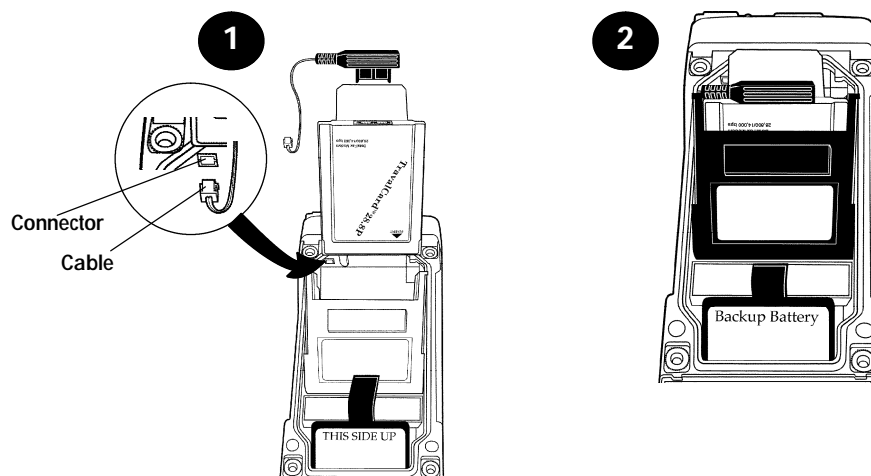


Figure 2-5
Installing Modem Card

Downloading Programs into Your Hand-Held Computer

Using Pen*Key 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:

PEN*KEY UTILITIES COMMUNICATIONS	
1. BEGIN COMM SESSION	
2. COM x-comm set -- x	
3. UNIT ID	ZZZZZZX
4. X -- mdm type -- x	
xprotx	xbpsx 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 Pen*Key Utilities Programs procedures.

Section 3

Routine Care and Maintenance

Introduction

Your 6220 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

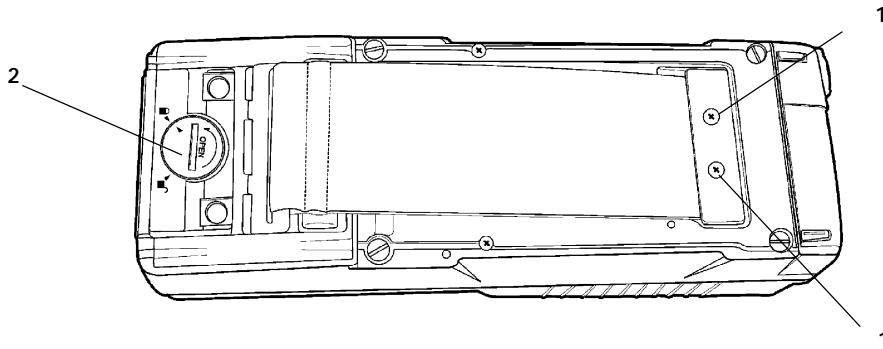
When you press the ON key to resume operation and it does not respond at all, this usually indicates a low main battery condition. Insert your hand-held computer in a printer or other charging source and your hand-held computer will turn on.

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 in place.
2. Position the Battery Compartment latch knob in the unlock position.
3. Lift the handstrap off and replace with a new one.



1. Screws holding handstrap
2. Battery compartment latch knob

Figure 3-1
Replacing 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 cleaner on a soft cloth and gently wipe the case.

Case and Display

We recommend cleaning the exterior of your hand-held computer using a soft cloth dampened with:

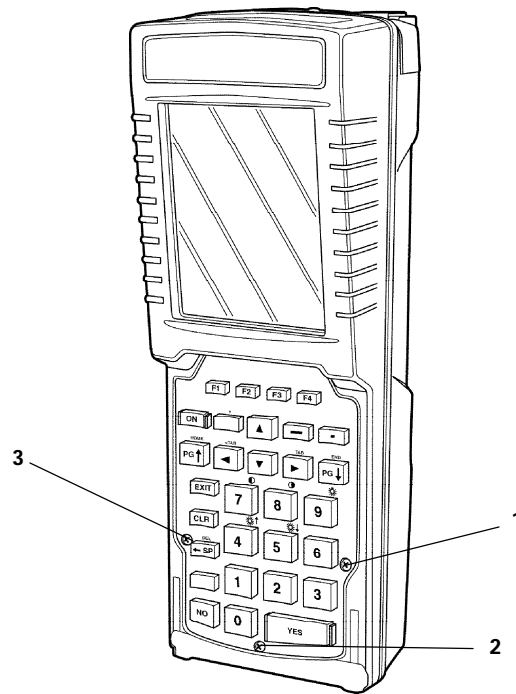
- MICRO-CLEAN II cleanser, made by Foresight International, Inc. 4887 F Street, Omaha, NE 68127-0205 (telephone number 1-800-637-1344)
- Glass cleaners or isopropyl alcohol

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. Three screws 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

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044

- 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

Condition	Solution
Low Battery	Recharge main Li Ion pack.
When The ON Key Is Pressed The Display Is Blank.	<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. You may need to reload the application.</p>
Batteries Will Not Charge	<p>This problem can occur if the battery pack drops below a certain voltage. Do these two things:</p> <ul style="list-style-type: none"> * Replace with new charged battery pack. * Reboot computer.
Printer Not Ready	<ul style="list-style-type: none"> * 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.
Will Not Turn On When The ON Key Is Pressed	<ul style="list-style-type: none"> * Ensure that there is a main battery installed. * Ensure that the main battery is charged. * Adjust contrast.

Table 4-1 (continued)
Basic Troubleshooting

Condition	Solution
Hand-Held Computer will Not Turn On When Placed In A Dock	<ul style="list-style-type: none"> * Ensure the dock is plugged in. * Reseat hand-held computer into dock to ensure proper connection. * Adjust the contrast setting, it may be turned Off.
Hand-Held Computer Shuts Down During Use	<ul style="list-style-type: none"> * You may have a very low battery. Try recharging the main battery.
Hand-Held Computer Resets When You Replace Or Check The Main Battery	<p>The backup battery may not be fully charged, allow 14 hours to completely recharge the backup battery.</p>
Hand-Held Computer Goes To Sleep Immediately After It Has Been Removed From The Charger	<ul style="list-style-type: none"> * Ensure that the battery pack is installed properly in the battery compartment. * Ensure that none of the contacts in the battery compartment are bent. * Ensure that there is no foreign material (dust, dirt, or plastic shavings, etc.) on the battery pack or battery contacts. * Press the ON key. If your computer does not resume, the battery still is low. Recharge for at least 30 minutes or try another battery pack.

Table 4-1 (continued)
Basic Troubleshooting

Condition	Solution
Hand-Held Computer Does Not Suspend	<p>* The unit will not turn off when it is connected to a charging device.</p> <p>* The unit may not turn off when it is processing data or in radio communications.</p> <p>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 customer support personnel, as this will run down the batteries.</p>
Hand-Held Computer Takes A Long Time To Boot Up After A Reset	<p>Normal time is between 10–45 seconds. If it takes longer than that, contact customer support personnel.</p>

Table 4-1 (continued)
Basic Troubleshooting

Condition	Solution
Hand-Held Computer Does Not Start Up	<ul style="list-style-type: none"> * Ensure that the battery pack is installed properly in the battery compartment. * Ensure that the battery compartment is operational (no bent contacts, no foreign materials, etc.). * 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.
Hand-Held Computer Displays A Bad Tcom Message	<ul style="list-style-type: none"> * The unit may not be making full contact with the dock. Try reseating the unit in the dock. * 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.

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

- Refer to the software documentation written for your application. This documentation contains troubleshooting information.
- Call the 24-hour Customer Response Hot-Line at 1-800-755-5505.

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

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

- " Contact your sales representative for additional information.
- " Call the Customer Response Center to determine where to ship the product.
- " 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

<u>Pin</u>	<u>Signal</u>	<u>Function</u>
1	RI	RS-232 Ring Indicator
2 *	DTR/TXD COM2	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/RXD COM2	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

* Pin 2 and 7 are multiplexed. If the three wire COM2 is selected then the /signal applies.

12-Pin Surface Contact Connector

<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/TXD COM2	RS-232 Data Terminal Ready
7*	DSR/RXD COM2	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)

* Pin 6 and 7 are multiplexed. If the three wire COM2 is selected then the /signal applies.

4-Pin RJ11 Connector

<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^R Utilities Program*

The PEN*KEY^R 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

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.

The following is an example of a pop-up menu screen.

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

Drop-Down Lists

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 select. Select one suboption each time.

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

The following is an example of a drop-down list.

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

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	

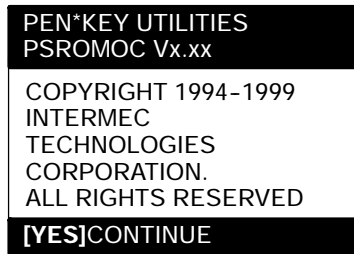
If your computer has a numeric keyboard, enter alphanumeric data by pressing the **A** and **"** keys to scroll back and forth through the set of alphanumeric characters. After a character is selected, press the **[YES]** key to enter that character. Press **[YES]** again to move to the next field.

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.

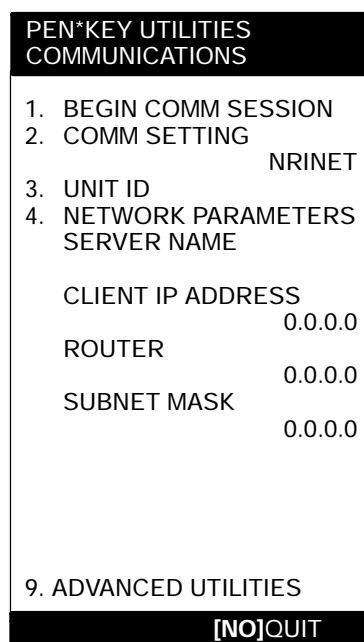
Communications Menu

" **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 repeatedly attempts communication 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?
[YES]STOP [NO]RESUME

" 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	20
STATUS:	
[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
119	Invalid name number
120	No answer
121	Name not found
122	Name in use on remote adapter
123	Name deleted
124	Session ended abnormally
125	Name conflict
126	Incompatible remote device
133	Network interface is busy
134	Too many commands outstanding
135	Invalid LAN adapter number
136	Command completed while cancel occurring
138	Command not valid to cancel
164-179	Unusual network condition
180-354	Adapter malfunction

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

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

- 06** No dial tone
- 07** 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 1-800-755-5505 (U.S.A. or Canada) or 1-425-356-1799.

*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.

- " **813** An attempt to send data to the server failed due to a closed connection. Ensure the server is still running, check all cables and network connections.
- " **814** An attempt to receive data from the server failed due to a closed connection. Ensure the server is still running, check all cables and network connections.
- " **815** Could not access the network attach information.
- " **816** An error occurred reading the network attach information.
- " **817** Server did not respond to the connect request. Ensure the server is still running, check all cables and network connections.
- " **818** An error occurred reading the TCP/IP kernel information.
- " **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.
- " **100** TCP/IP kernel is missing.
- " **101** Invalid client IP address. Ensure the entry for CLIENT IP ADDRESS is correct or ensure the DHCP server is running.
- " **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. . .
 2. MODEM/DIRECT
 3. ACCESSORY CARD
 4. HANDHELD
 5. REMOTE OPS
 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 |
| 2. NPCP RS232 |
| 3. NRINET |
| 4. TFTP |
| 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

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.

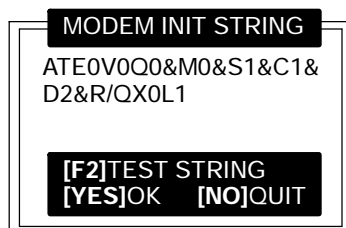
MODEM PARAMETERS	
1. MODEM TYPE	NM2400/NM2400A
2. PROTOCOL	TTY
3. BPS RATE	2400
4. DATA FORMAT	8N1
5. AUTO ANSWER	NO
[NO]DONE	

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 1-800-755-5505 (U.S.A. or Canada) or 1-425-356-1799.*

Modem string errors are most likely to be mistakes that can be corrected by checking the instructions that came with the modem. If that does not work then contact the manufacturer of the modem you are using.

- 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

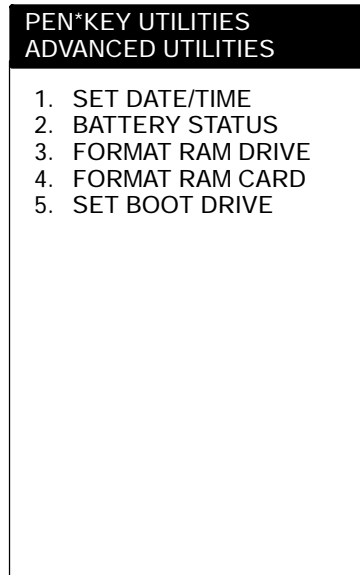
Enter up to 16 characters. Use the [**←SP**] key to backspace; use the [**CLR**] to reset to the previous phone number, and press [**.**] to insert a dialing pause command (“,”).

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.

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.

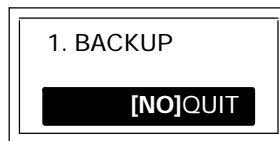
Suboption 2 BATTERY STATUS

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

PEN*KEY UTILITIES BATTERY STATUS	
MAIN PACK VOLTAGE	CHARGING 7.37
BACKUP VOLTAGE	2.94
LAST COND	10/10/98
CAPACITY	23:59
CHARGER	12.00
[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 6220 Computer backup battery, press **[F2]** to access this menu:



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	
BACKUP VOLTAGE	2.90
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 meaning occurred.

" **NOTE:** *[YES] CONTINUE* does not appear until the conditioning cycle is 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 1 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.*

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 temperatures fall below 0° C (32° F) or rise above 40° C (104° F).

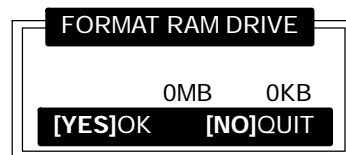
Considerations

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 be 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:

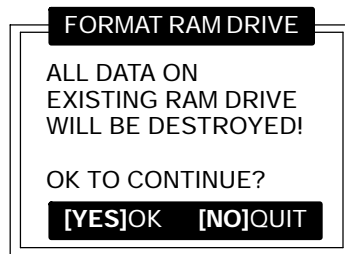
A rectangular pop-up menu box with a double-line border. At the top, a black bar contains the text "FORMAT RAM DRIVE" in white. Below this, the text "0MB 0KB" is centered. At the bottom, there are two black buttons with white text: "[YES]OK" on the left and "[NO]QUIT" on the right.

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:



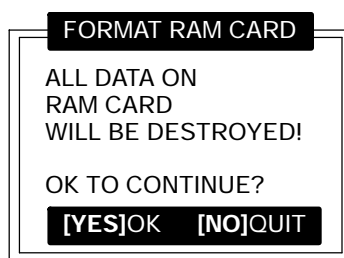
Press the **[YES]** key to continue. Press the **[NO]** key to exit the menu.

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.*

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

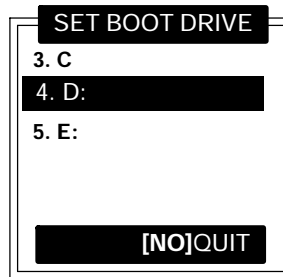
Press the number of the RAM card drive, or press the **Y** or **B** keys to scroll through the list, then press the **[YES]** key to enter. A pop-up verification window appears:



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.*

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.

Glossary

ATA Card

A credit-card-sized device, which has been specially designed to meet the needs of small computers, and can be inserted and removed from a PC Card slot. In the PEN*KEY products, it is generally a flash storage card, modem, radio, etc. (See also: Flash Card, SanDisk, Spinning Media, or Hardcard)

Boot Default Drive

The drive from which the computer will boot. By default, it is the flash drive D: but another drive (RAM drive or card slot) may be selected.

Bootable ATA

The ability to run the CONFIG.SYS and AUTOEXEC.BAT from an ATA card. In some older versions of flash, the CONFIG.SYS from the flash drive had to be run to load the drivers for the ATA card. With *Bootable ATA* the CONFIG.SYS and AUTOEXEC.BAT are run from the ATA card without loading any drivers.

Dock

A device in which one or more hand-held computers may be placed for charging and communication.

DOS (Disk Operating System)

A program or set of programs that tells a disk-based computer system to schedule and supervise work, manage computer resources, and operate and control its peripheral devices.

Download

The transmission of data from a host computer to a mobile computer.

Ethernet

A general term indicating both 802.3 and DIX Ethernet (also called Ethernet 2.0). See also: 802.3

Flash

A technology for nonvolatile memory storage. A special type of EEPROM that can be erased and reprogrammed.

Flash Card

A memory storage PC Card that meets the ATA standard. (See also: ATA Card, SanDisk, Spinning Media, or Hardcard)

Function

A collection of declarations and statements returning a value that can be called by name.

Host Address

The part of an internet address that designates which node on the (sub)network is being addressed. Also called host number.

Host Computer

A large computer that serves many users, such as a PC, minicomputer, or mainframe.

Host Controller

A 4980 Controller that is functioning as a host to a secondary controller.

Host Port (*com4980*)

A port that can connect to a host or a 4980 Network Controller.

Host System (*com4980*)

The Unix system that the COM4980 Package runs on.

LAN (Local Area Network)

A group of network devices in which each device can communicate through a wired or wireless link. The wired link may have several segments joined by repeaters and

bridges. The LAN is characterized by the relatively short distance it is designed to cover, a high speed of operation, and relatively low error rates. The geographic scope of LANs is limited to thousands of feet or closely-spaced building complexes.

Modem

A communication device that enables a computer to transmit information over a telephone line.

Modem Baud Rate

The speed of the modem connection. The higher the number the faster the rate.

Modem Device Name

The name of the communications port, for example: COM1, AUX2, HOST3, or DIGI4.

Modem Settings

The command strings required by your modem.

MS-DOS (Microsoft Disk Operating System)

A master control program for 16-bit, Intel-based system.
One of the more common operating systems on PC systems.

Multicast Address

A form of broadcast address through which copies of the frame are delivered to a subset of all possible destinations with a common multicast address.

Multi-Link (Mlink)

A software product that allows for transmitting data from a terminal to a PC-compatible computer.

Multi-tasking

A computer's ability to run more than one application at the same time.

Network

A computer data communications system which interconnects computer systems at various sites. A network

may include any combination of LANs, MANs, or WANs.
See also: LAN, WAN, internet.

(ADK) A computer network or terminals connected by means of (wires or radio transmissions) using software that enables them to exchange information.

NMSD

NORAND Mobile Systems Division of Intermec Technologies Corporation.

NPCP (NORAND® Portable Communications Protocol)

NPCP, a NORAND proprietary protocol, provides session, network, and datalink services for NORAND HHCs in the NORAND LAN environment used with printers and data communications.

OEM (Original Equipment Manufacturer)

A term that identifies certain hardware vendors who produce PC hardware for a system built by another company.

On Key

This key is found on some units. It will not turn the unit "On" or "Off" but it will suspend/resume operation.

PC Card

A device that fits in the card slots of an Intermec or other computer. In some PEN*KEY computers, the smaller type II card occupies one slot, while a type III card blocks the second slot. The card may be used for data storage, modem, printer, wireless, or other purposes.

Generally, PC Card is used in reference to devices, whereas PCMCIA is a reference to the standard.

PC Card Icon

An icon located in the System Tray, which indicates a PC Card is plugged into the PC Card slot. (See also: System Tray)

PCMCIA (Personal Computer Memory Card International Association)

An industry group responsible for creation of the standard for devices (slightly larger than a credit card) for small computers, such as laptop and hand-held computers.

Formerly, devices were referred to as PCMCIA cards, but are now generally referred to as PC Cards, while PCMCIA is a reference to the standard.

PEN*KEY Utilities

A program that provides the basic functions needed to prepare the PEN*KEY for use, including program load and data communications.

Plug and Play

The combination of BIOS, operating system, and peripheral device components that provides an environment that configures itself, thereby avoiding potential hardware conflicts for the operating system by polling the peripheral devices, assessing their requirements, and determining and implementing optimal settings for each device.

Port

The physical hardware communication port.

(SNMP) Physically, an access point to a computer, multiplexer device, or network. Logically, a pointer to a TCP/IP application.

Protocol

A formal description of message formats and the rules computers must follow to exchange those messages.

ROM (Read Only Memory)

Contains information that cannot be reprogrammed by the user. A user can write some variables to ROM; such as software, boot segment, data segment, and baud rate.

RS-232 C (Recommended Standard 232)

An Electronic Industries Association standard interface between data terminal equipment (DTE) and data

circuit-terminating equipment (DCE) with serial binary data interchange.

SanDisk

A brand of flash memory card. (See also: ATA Card, Flash Card, Spinning Media, or Hardcard)

Scroll

To move through text or graphics (up, down, left, or right) to see parts of the window not shown onscreen.

Serial Interface

An interface in which the terminal or computer sends single bits of information to the other device, one after another.

Serial Lid

A cap for the 6100 Computer which contains various communications capabilities.

Stylus

A pen-shaped device, used for input on a touch screen by tapping or sliding.

UPC (Universal Product Code)

A bar code symbology used throughout the grocery and retail industries.

Upload

The transmission of data from a mobile computer to a host computer.

Wireless

The transmission of data using radio waves.

The wireless access point provides store-and-forward operation (a hop) with each frame transmitted twice over the wireless media to reach its destination. Because frames are transmitted twice, the amount of wireless traffic over the radio network doubles.

In general, the throughput of a wireless access point has about half the effective bandwidth of a wired bridge,

because all frames received on the radio channel must be forwarded on the same channel. Therefore, using a wireless access point exchanges performances for ease of installation.

Wireless Stations

An inclusive term that refers to network terminals and computers equipped with wireless NICs. Network terminals include the INTERMEC RT1100 Radio Terminal, RT1700 Radio Terminal, and RT5900 Radio Terminal, and the TRAKKER ANTARES products. Wireless computers include the JANUS Terminal, PEN*KEY 6400 Computer, and PEN*KEY 6550 Computer.

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