HP 200LX User's Guide

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Edition 1 .... January 1996

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1
Getting started

Before You Begin. *Install the batteries, adjust the display contrast, set the time and date, and fill out the Topcard as described at the beginning of the Quick Start Guide.*

A look at your palmtop PC
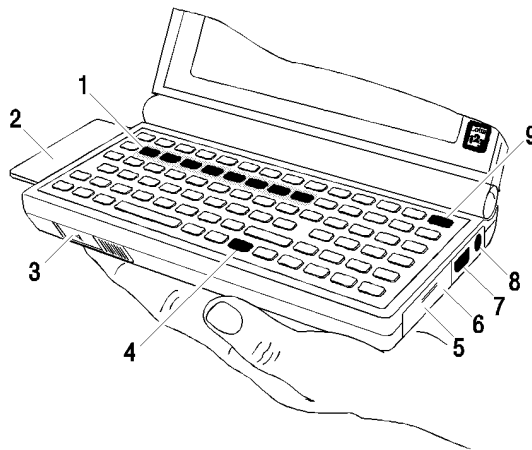
1. Application keys
2. Plug-in card slot (drive A)
3. Card-eject slide switch
4. Menu key
5. Backup battery cover

6. IR port (Infrared radiates through the plastic)
7. Serial port
8. AC adapter jack
9. ON/OFF key

Hardware features

Among the palmtop PC's hardware features are

A rugged "clamshell" design, which protects the keyboard and
display when you're on the go.

A CGA-compatible, 80 x 25 character display with a "zoom"
capability for text-based applications.

A PCMCIA release 2.0, type II plug-in card slot.

An Infrared (IR) port for wireless communications.

A serial port for communications to a PC, modem, printer, or
other serial device.

*A typewriter keyboard layout with a "sticky" shift key—you don't need to hold
down ⬆ while you press another key; you press it to activate it and then
press the other key. Shifted key definitions are shown in orange on the
keyboard.*

Software features

*The second row on the palmtop keyboard contains a set of green application
keys.*
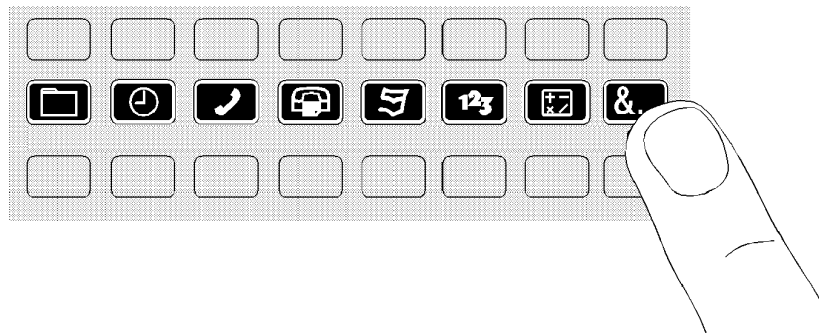
Green Application Keys

*These keys enable you to run the built-in applications. The last key in the row,
&…, gives you access to additional built-in applications that show up in the
display.*

```
  Appoint  Phone   Note   Memo   Data   Pocket  Lotus   HP
  ments    Book    Taker         base   Quicken  123    Calc

  cc:      Filer   Setup  DOS    World  System  Data   LapLink
  Mail                          Time   Macros  Comm    Remote
```

426K Free / 529K Total

| Help | Add | Edit | Delete | Open | Close | Order | List | Page Up | Page Dn |
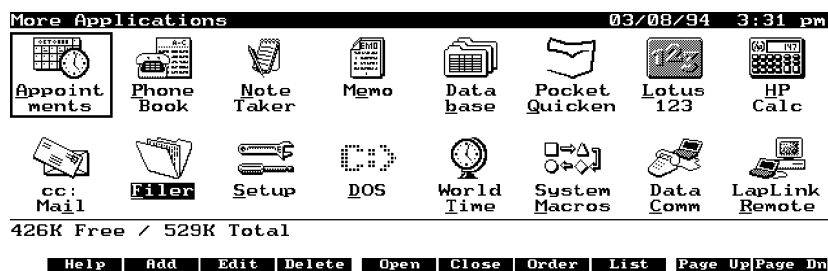
More Applications Screen

Use `F10` *(Page Dn) to see additional applications.*

The Built-in Applications

Press	To Start	Press		To Start
▭	The Filer	`&...`	`S`	The Setup Utility
▭	Pocket Quicken	`&...`	`C`	Datacomm
⊘	The Appointment Book	`&...`	`W`	The Stopwatch
☏	The Phone Book	`&...`	`B`	The Database
▤	The Memo Editor	`&...`	`N`	The Note Taker
`123`	Lotus 1-2-3	`&...`	`D`	MS-DOS
`+ /` `x /`	The Calculator	`&...`	`T`	World Time
`&...`	Applications Manager	`&...`	`M`	System Macros
		`&...`	`I`	cc:Mail
		`&...`	`R`	LapLink Remote
		`&...`	`+`	Hearts+Bones
		`&...`	`U`	Lair of Squid
		`&...`	`O`	Demo program

Note

Help is always available within any application by simply pressing the
`F1` *key (* `CTRL` *+* `F1` *in Datacomm). Because it is your built-in*
quick-reference guide.

To quit an application, press `MENU` `Q`. *It is not necessary to quit one*
application before starting another, but quitting applications helps free up
system memory.

Activating password protection

You can protect your entire palmtop from being used by other people by setting a password. Setting passwords for individual files is covered under Setting passwords for files later in this chapter. You can set a machine-locking password to work in one of two ways:

Auto-lock mode. Whenever the palmtop is turned off, times out, or is reset by a system reset, you must enter the password before you use it.

Manual-lock mode. *Turn the palmtop off by pressing* $\boxed{\text{ON}}$ + $\boxed{\text{ENTER}}$ *—-hold down* $\boxed{\text{ON}}$, *press and release* $\boxed{\text{ENTER}}$—*to activate password protection. When the palmtop times out, is reset, or is turned off by just pressing* $\boxed{\text{ON}}$, *you do not need to enter the password to use the machine.*

When password protection is activated and you turn on your palmtop, you must respond to the prompt by typing your password and pressing $\boxed{\text{ENTER}}$ *before you can use the unit.*

Rules for the password:

It will be case-sensitive.

It can have up to 12 characters.

You can use only the lower 128 characters in the character set. These are generally the characters on the keyboard. For a complete list of these characters, see *Appendix C*.

You cannot use control characters.

Caution

Be sure to record your password in a safe place. To resume operation if you forget it, you'll have to call Hewlett-Packard Customer Support at the number on the inside back cover of this manual.

If you use the KEYBEZ utility to remap the keyboard, take care to choose a password that won't be affected by the remapping.

To set or change a password:

Press $\boxed{\&...}$ $\boxed{\text{D}}$ *to start the DOS application.*
Type PASSWORD *and press* $\boxed{\text{ENTER}}$.

Follow the instructions on the screen. Remember to press ENTER *after each response to a prompt. When you are told to verify your password, simply type it again.*

Type EXIT *and press* ENTER *to quit DOS.*

When you first set a password, it is automatically implemented in manual-lock mode—password protection is activated only when you turn off your palmtop by pressing ON *+* ENTER*. You can change this to auto-lock mode, or deactivate password protection altogether, by following the next procedure.*

To change the mode or deactivate password protection:

Press &... D *to start the DOS application.*
Do one of the following:
 Type PASSWORD /A *to implement auto-lock mode.*
 Type PASSWORD /M *to implement manual-lock mode.*
 Type PASSWORD /D *to deactivate password protection.*
Press ENTER*. If you're deactivating password protection, you'll need to enter the old password at this point.*
Type EXIT *and press* ENTER *to quit DOS.*

Managing memory

Types of memory in the Palmtop

ROM. *Permanent memory that contains the built-in applications and that cannot be erased or overwritten. ROM contains a permanent ROM disk, which is designated drive D.*

System RAM. *Workspace for open applications. Open spreadsheets and memos that haven't been saved reside here.*

RAM disk. *Storage space for saving files when you're done working on them. The RAM disk is designated drive C and is used just like a hard disk on a PC.*

Memory cards. *Plug-in memory for additional storage space for data and programs. The plug-in slot is designated drive A, and memory cards are used like floppy disks on a PC.*

Saving data

Data that you enter using most of the palmtop applications is saved automatically when you enter it. The stored file (either on drive A or C) is changed as you edit it.

However, in 1-2-3, the Memo Editor, the Calculator, and System Macros a stored file is not changed until you formally save changes. A worksheet or memo is copied into system RAM where it is edited. When it is saved, the changed copy is moved back to drive A or C and, unless you save it under another name or path, it overwrites the original copy.

All palmtop applications follow standard MS-DOS conventions for file and path names

---

Note

Your palmtop contains a directory on drive C called _DAT. You should not remove or rename this directory because it is used by several of the built-in applications.

Backing up data

It's a good idea to regularly back up drive C like you would any PC hard disk. Use the Filer to copy the files to a memory card or, if you have the Connectivity Pack, to a PC. The backup procedure is described under Backing up a directory's files in chapter 22.

Using memory cards

Your palmtop supports PCMCIA 2.0 type I or type II memory cards, which enable you to significantly expand data and program storage. Terms you sometimes hear that refer to memory cards include mass storage cards, PC cards, flash cards, flash disks, *and* RAM cards.

A memory card plugged into your palmtop is designated drive A, and you use it just like you would use a floppy disk on your PC.

At the time of this writing, HP provides three flash memory cards (called Flash Disks) for your palmtop: the HP F1012A (5 MB card), the HP F1013A (10 MB card), and the HP F1014A (20 MB card).

See your dealer for purchase information.

To insert and remove a card:

Caution

Be sure to turn off the palmtop before inserting or removing a plug-in card. Otherwise, data loss could result.

To insert a card, hold it with the logo on top and push it in the slot on the left side of the palmtop until it won't go in any further. A fully-inserted card is flush with the palmtop case. To remove a card, slide the card-eject switch to the left.
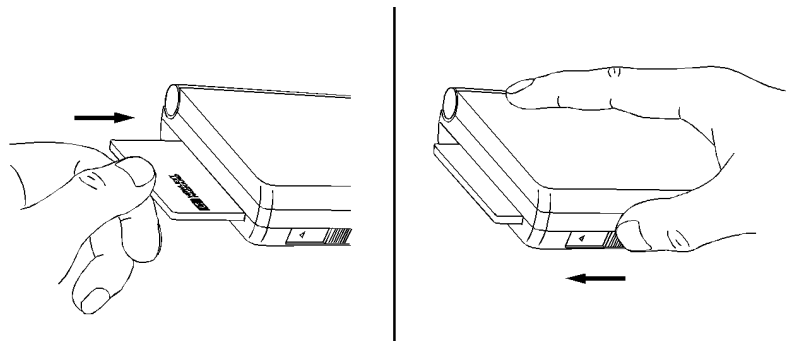
Inserting and Removing a Card

Resetting your palmtop

If your palmtop fails to respond to keystrokes or otherwise behaves unusually, you should do a system reset *(also called* rebooting *the computer).* **Do not remove the batteries.**

Caution

A system reset erases the contents of system RAM (but not the RAM disk). Therefore, any data not already saved will be lost.

You perform a system reset by pressing [CTRL] + [ALT] + [DEL] *(that is, holding down* [CTRL] *and* [ALT] *and then pressing* [DEL]*).*

If a system reset doesn't work, as a last resort you can attempt a **hard reset** *by simultaneously pressing* [CTRL] + [ON] + [⇧] *(the gold arrow). You will be asked if you want to initialize the RAM disk, which erases its contents. If you type y (for yes) and press* [ENTER]*, a hard reset will occur and all data is lost; if you type n (for no) and press* [ENTER]*, a system reset is attempted.*

Caution

A hard reset erases the contents of system RAM and the RAM disk. All data on drive C (the RAM disk) will be lost. Also, settings changed via the Setup Utility (for example, battery charging) will revert to their default states.

If resetting your system as described above doesn't fix your problem, contact Customer Support as described on the inside back cover of this manual.

Battery-saving tips

Use rechargeable batteries as described in Appendix B.

Use the AC adapter (HP F1011A) whenever possible.

Quit Datacomm and the Filer (press [MENU] [Q]) when you're not using them. These applications use the serial port and therefore require slightly more power than the other applications.

When you see the message telling you that the main batteries are low, replace them (or recharge them) as soon as possible. This will help you get the most out of your backup battery. See *Appendix B* for instructions on changing batteries.

Always install fresh, high quality batteries (all of the same brand).

Remove high-current plug-in cards—this does not include memory cards— when you're not using them. For example, plug-in modem cards are notorious for draining batteries quickly, even when you're not using the modem. Therefore, be sure to take out a modem card when you're not using

it, and when you are using it, use the AC adapter.

Application screens

To start an application:

Press its green **application key.**
If the application is not on the keyboard, press ⟨&...⟩, then press the underlined letter as shown.

To quit an application:

Press ⟨MENU⟩ ⟨Q⟩.

The elements of an application screen

Application.

Filename. Menu bar (press ⟨MENU⟩). Screen title. Today's date.

Data card.

```
NoteTaker·NOTES            All Notes          01/13/95  1:06 am
 File   Edit   View   Search   Options   Quit   Help
▣Deadlines        64        Deadlines
▣Gift ideas       130
▣Projects, home   291        12/12   writing
▣Projects, yard   148        1/2     review
▣Shopping list    225        1/16    editing
                             2/1     printing



                                        (1/5)
    Help  I  Add  I  Note  I  Find  ▣  Clip  ISubsetI  Sort  IColumns▣  Open  I
```
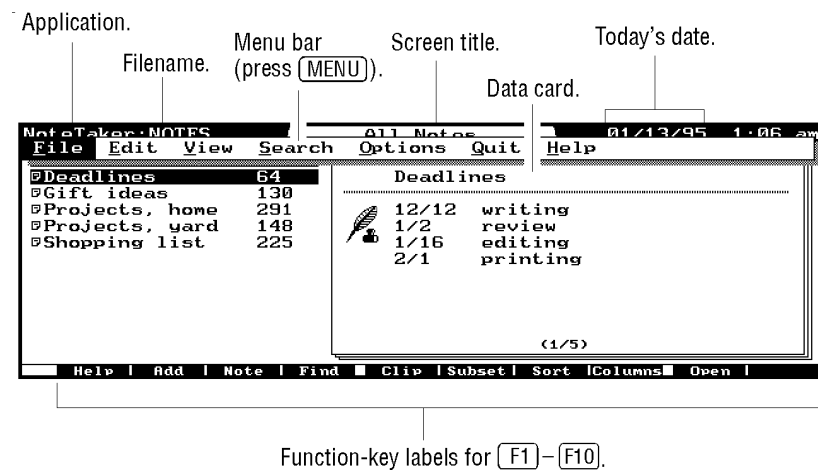
Function-key labels for ⟨F1⟩–⟨F10⟩.

An Application Screen

Screen title *identifies the particular screen.*

Menu bar displays the menu of commands. Press ⟨MENU⟩ or
⟨ALT⟩ to display the menu bar. If the computer beeps, you
need to press ⟨ESC⟩ first.

Function-key labels *show current functions for keys* ⟨F1⟩ *to* ⟨F10⟩.

Controlling the display size with ZOOM

To change the size of the characters:

Press ⌈FN⌉ ZOOM (that is, ⌈FN⌉ then ⌈SPACEBAR⌉) to change the size of the displayed characters in text-based applications, such as the Memo Editor and 1-2-3. ZOOM cycles through three different display sizes (1-2-3 uses only the first two):

80 columns x **25 lines.** This fits as much information on the palmtop display as on your PC display. It produces the smallest characters.

64 columns x **18 lines.** This is the only size for most built-in applications.

40 columns x **16 lines.** This produces the largest characters.

PIM application views: list and record

The palmtop Personal Information Management (PIM) applications (Appointment Book, Phone Book, Note Taker, Database, World Time) present information in two major views:

The data list summarizes each record with a one-line entry.

The data record *shows you all the information for one item (list entry). For instance, an appointment record contains everything about your 10:00 appointment (when, where, how long, what for, and so on).*

The Data List

This lists the data records in the current application file. Each record has a one-line entry.

Current item in list.

```
 ApptBook:APPT            Appointments          01/13/95  1:11 am
Week 2                Fri ay January 13, 1995                13/352
 ♪[  8:00a Teleconferen a European office
     9:00
 ♪[ 10:00  Staff mtg
    11:00
 ♪[ 12:00p Group luncheon
     1:00
     2:00
 ♪[  3:00  Call MJ
     4:00
     5:00
     6:00
     7:00
 ♪[  8:00  Fund raiser
     9:00
     Help  |  Add  |  Note  |  Find  ▌ Goto |6 Month| Month | Week ▌    |  ToDo
```

An Appointment List

Use ▲ and ▼ to highlight any item and scroll through the list. To jump further, use FN HOME, FN END, FN PG UP, and FN PG DN.

Press ENTER to display the complete record of the highlighted item.

Press F2 *(Add) to add a new item.*

The Data Record

The record defines each item in detail. The data appear in labeled fields.

Field name.   Text box.

```
 ApptB ok:APPT          Ap ointment/Event      01/13/95  1:13 am
Description Staff mtg
Start Time   10:00am              Start Date  1/13/1995
End Time     11:00am              No. Consecutive Days 1
Location                  
┌Alarm─────────────────┐     ┌Views────────────────────┐
│ ☑ Enabled            │     │ ☑ Week        ☑ Month    │
│ Leadtime 5           │     Repeat Status: None
Note Bring report on construction.
     Help ▌  Add  |  Note  |  Find  ▌ Clip |Calendr|    | Repeat ▌ Cancel |  Done
```

Note Field.

Pressing F10 saves the record as is and closes it.

An Appointment Record

Use [TAB] or [⇧] [TAB] to move from field to field.

Press [ALT]+underlined letter to move directly to a field. In the above example, [ALT]+[N] moves the cursor to the Note field.

Press [F10] to save and close the record.

Press [ESC] or [F9] to cancel changes to a record.

The Note field provides an area for text entry and editing. Pressing [F3] (Note) provides a full-screen area for text editing.

Screen annunciators

Annunciators *displayed on the screen indicate certain conditions that are in effect.*

Annunciator	Meaning	Location
↑	The [⇧] shift is on.	Lower corner.[1]
�֎	The [FN] shift is on.	Lower corner.[1]
ẫ	Insert mode. Cursor shows underlying character.	
▒	Replace mode. Cursor hides underlying character.	
|	End of text field.	Cursor.
_ (underscore)	Cursor for 1-2-3.	
▲	Caps Lock is on.	Lower corner.[1]
⌛	Busy. The palmtop is processing information. Center.	

Lower right for 1-2-3 and DOS screens; lower left for other applications.

Menus

There are three ways to perform palmtop operations:

Using **keys** that perform operations, like [ESC] and [DEL].

Using **function keys** ([F1] through [F10]), which perform the operations shown on the current **function-key labels**.

Using menu commands*, which appear in* **pull-down menus** *under the menu bar.*

All commands appear in menus. Most of the more common ones also appear on function-key labels. Many others are on the keyboard.

Menu bar.   Shortcut keys.


```
Datacomm                                            01/15/94 10:51 am
  File   Edit  Connect  Quit   Help
              Connect            F10
              Hangup             F10
              Settings...
              Capture...         F5
              Stop Capture       F5
              Pause Capture      F6
              Run Script...      F7
              Send Line Break    F8
              Kermit Commands...
    PF1  |  PF2  |  PF3  |  PF4  |Capture|   | Script|Linebrk|   |Connect
```

Pull-down
menu.

Unavailable command.

A dialog box follows.

Function-key labels.
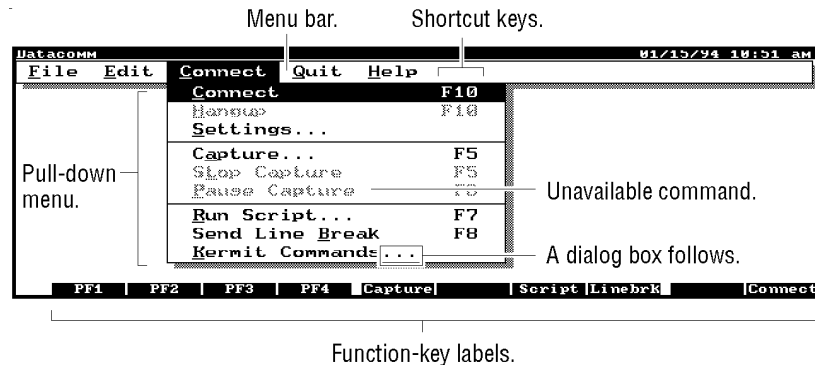
Menu Commands and Function Keys

Menu bar. Press MENU or ALT to display it. To select a command, press the underlined letter key (press F for File, for example) *or* highlight the command (press an arrow key) and press ENTER.

Pull-down menu. Shows the commands under the menu item. To select a command, press its underlined letter.

Unavailable command. *If a command appears dimmed ("grayed"), then it is not available at this time.*

Ellipsis *(...). This command will display a* **dialog box** *to solicit more information.*

Shortcut keys *(hot keys). You can press these keys instead of displaying menus and selecting commands. For instance, pressing* F5 *in Datacomm is a shortcut for* MENU C A *(Connect Capture).*

Function-key labels. *The currently active functions for the corresponding top-row keys* F1 *through* F10.

To scan the menu commands:

Press MENU.
Press ENTER *to pull down the first menu.*
Press ▶ *to move across the main menu, displaying each pull-down menu.*

This gives you an overview of the features available in an application.

To cancel a menu:

Press ESC.

This returns the previous display.

Using dialog boxes

Dialog boxes *appear in response to certain commands or functions that require more information from you. A dialog box appears shaded and on top of its parent screen, indicating that it arises from a broader context.*

If you are asked for information, you can specify it by typing it in or by selecting an option from a list box. Labeled function keys are available for certain standard responses.

The Elements of a Dialog Box

Option buttons.   Current field.   List box (unopened).

Check box.   Command buttons.
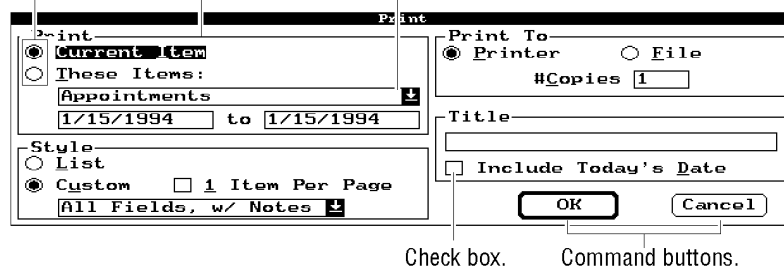
A Dialog Box: Print Specification

Current field. *Your current position is shown by a highlighted field or by a cursor in a box.*

Option buttons. Options in the same group box are mutually exclusive, so you can select only one. An option button might include a list box for further choices.

List box. A list box offers a list of choices. **Drop-down** list boxes initially are closed, as in the picture above. A closed list box shows one line—the current selection.

The ⬇ indicates a **list box** that you can open to display more

lines. When the cursor is in this field, press $\boxed{\text{ALT}}$+$\boxed{\blacktriangledown}$ simultaneously to open it. ($\boxed{\text{ALT}}$+$\boxed{\blacktriangle}$ closes it.)

Check Box. Select as many check boxes as you want.

Text box. You can type information here. The top box in a list box is also a text box, but some list boxes are not editable (changeable).

Function keys. The functions change with the context, except for $\boxed{\text{F1}}$ (Help), $\boxed{\text{F9}}$, and $\boxed{\text{F10}}$. Press $\boxed{\text{F10}}$ (OK) when you are finished filling out the dialog box. Or press $\boxed{\text{F9}}$ (or $\boxed{\text{ESC}}$) to cancel any changes.

Command buttons. *These are large, rounded boxes for OK, Cancel, and a few other commands. All command buttons are also available as function keys.*

Navigating dialog boxes and records

To move to a field (in a record or a dialog box):

From *any* field, simultaneously press $\boxed{\text{ALT}}$+underlined letter.
  or
Tab to the field ($\boxed{\text{TAB}}$ *or* $\boxed{\Updownarrow}$ $\boxed{\text{TAB}}$*).*

To select an option button:

Simultaneously press $\boxed{\text{ALT}}$+underlined letter.
  or
Tab to the option-button group, and then arrow to the specific option to turn it on.

If there is a box next to the option button, press $\boxed{\text{TAB}}$ *to move to it and fill it in or make a selection.*

To check and uncheck a box:

Simultaneously press $\boxed{\text{ALT}}$+underlined letter.
  or
Tab to the check box, and then press $\boxed{\text{SPACEBAR}}$*.*

To use a command button:

There is always a default, outlined command button, usually the "OK" button.

Press ENTER to execute the default command button.

or

Press the corresponding function key (such as F10 for *OK).*

or

Press ALT+underlined letter simultaneously.

or

Tab to a different command button and press ENTER.

To use a list box:

List boxes offer a choice of options. Some list boxes are editable; that is, you can add your own choices.

Select the list box first, such as by tabbing to it.

To open a list box, simultaneously press ALT+▼. (⬇ stands for ALT+▼ just as an underlined letter stands for ALT+letter.)

To scroll through a list box, press ▼ or ▲. This automatically changes the selection shown in the text box on top.

To quickly locate an item in a *non-editable* list box, type its first letter (or more). The highlight bar moves to the next item starting with that letter. (If the list box is editable, then typing edits it.)

To close a list box, press ALT+▲ *or* ESC.

Press ▼ to scroll and select.

Text box. ⎯ Appointments ⬇

Appointments
Events
Appointments & Events   ⎯ Choices.
ToDos
Completed ToDos
Uncompleted ToDos
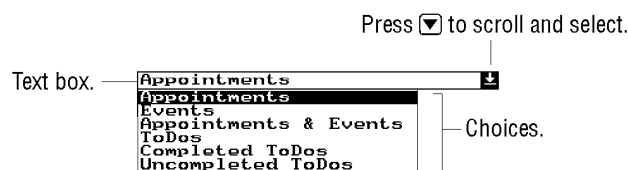
An Open List Box

To complete or exit a dialog box record:

Press F10 to save what you've specified.

or

Press ESC or F9 (Cancel) to cancel what you've specified.

or—-in a dialog box only—

Press [ENTER] *to execute the command button that is "on" (highlighted). Record screens have no command buttons.*

Example: Practice Filling In a Dialog Box. *You can practice the techniques described in this section by calling up a File Print dialog box. Record screens have many of these same elements.*

Press [🕐] [MENU] [F] [P] *for the Appointment Book's File Print dialog box.*

```
┌───────────────────────────────Print───────────────────────────────┐
│ ┌Print─────────────────────────┐ ┌Print to──────────────────────┐ │
│ │ ◉ Current Item               │ │ ◉ Printer      ○ File        │ │
│ │ ○ These Items:               │ │      #Copies 1               │ │
│ │   Appointments            ⬇  │ └──────────────────────────────┘ │
│ │   3/08/1994   to 3/08/1994   │ ┌Title─────────────────────────┐ │
│ ├Style─────────────────────────┤ │                              │ │
│ │ ◉ List    ○ Month            │ └──────────────────────────────┘ │
│ │ ○ Custom    □ 1 item per page│   □ Include today's date         │
│ │ All Fields, w/ Notes      ⬇  │ ┌Setup...┐ ┌  OK  ┐ ┌ Cancel ┐   │
│ └──────────────────────────────┘ └────────┘ └──────┘ └────────┘   │
└────────────────────────────────────────────────────────────────────┘
```
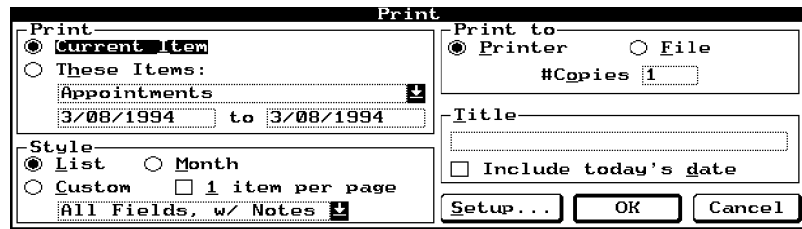
Practice navigating and filling in the fields.
Practice turning on option buttons, marking check boxes, opening a list box, and scrolling through it.
Press [ESC] *to cancel what you've done.*
Press [MENU] [Q] *to quit the application.*

A Look at the keyboard

These diagrams of the keyboard call out keys with special functions.

Keyboard—upper part
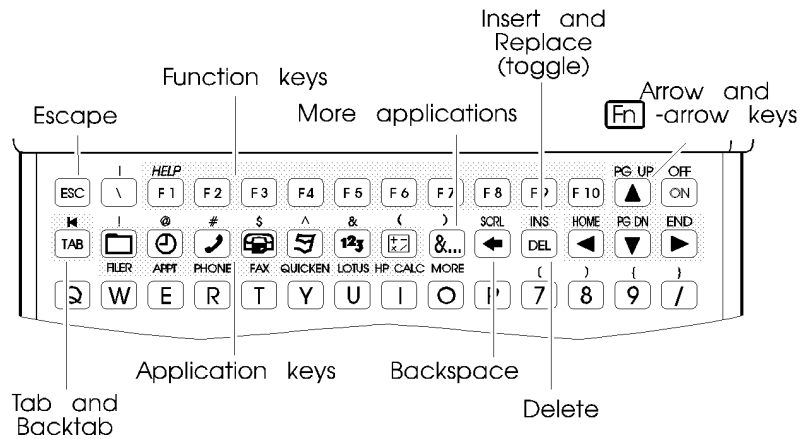
Keys:	Description:
Escape (ESC)	Cancels or "backs out" of the current context.
F1	is always HELP. The other function keys change their operations according to the labels along the bottom of the screen. Some external applications may use F11 and F12, accessed as FN 1 and FN 2.
More (&...)	Provides access to all applications.
Insert (FN DEL)	Toggles between text-overwrite and text-insert.
Arrow keys	Move the cursor in text or move the highlight bar in a list of items. The FN-shifted arrow keys move the cursor or bar further: to the top of the file or the beginning of a line (HOME), to the bottom of a file or end of a line (END), or by pages (PG UP, PG DN).
Tab and backtab (⇧ TAB)	Move the cursor among data fields, such as when you are filling in fields of information.
Application keys	Immediately start the specified application.
Delete (DEL)	Deletes a character at the cursor or a highlighted item in a list.

Keyboard—lower part
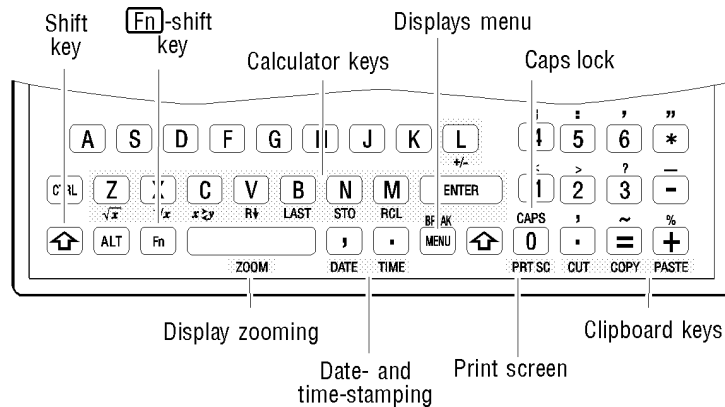
Keys:	Description:
Caps Lock (⎡FN⎤ ⎡0⎤)	Toggles capitalization on and off.
⎡MENU⎤	displays the current menu of commands. ⎡ALT⎤ doubles for ⎡MENU⎤ except in 1-2-3, where ⎡/⎤ is used.
Calculator keys	In the Calculator application *only*, these keys are redefined by the symbols in white underneath them. These are *not* shifted.
Shift	Operations and characters printed in orange *above* the keys are shifted. Press ⎡⬆⎤ first, then the key. You do *not* need to hold ⎡⬆⎤ down while pressing the second key. To cancel the shift mode, press ⎡⬆⎤ again.
Function shift	Operations printed in purple *below or above* the keys are Fn-shifted. Press ⎡FN⎤ first, then the key. You do *not* need to hold ⎡FN⎤ down while pressing the second key. To cancel the shift mode, press ⎡FN⎤ again.
ZOOM	Switches the resolution of the display. The effect varies from application to application.
Date and Time stamping	Insert the current date and time into the current text line in built-in applications.
Clipboard keys	Cut, copy, or paste selected items or text and save them in the Clipboard buffer.

Cancel and undo operations

Key or Command: Description:

ESC	Cancels the current activity and restores the previous screen.
Cancel (F9)	Cancels dialog boxes without taking any action. Also closes open records without saving new information.
Break (CTRL+BREAK)	Sends a standard PC break.
Quit (MENU Q)	Closes the current (active) application.
Undo (MENU E U)	Reverses the last data-altering or file-altering action, such as deleting, editing, cutting, or pasting records, or merging files. Undo does not work in all situations; check the Edit menu for it. You can also undo an undo operation.

Selecting items in lists

Some operations can act on more than one item in a list at a time. You can, for instance, delete several Phone Book entries at a time by first selecting *and then deleting the desired items (names).*

You can select *items in most lists of records or files.*

Selecting and De-Selecting

Keys	Description
SPACEBAR	Selects or de-selects an item in a list, marking it with a ◆.
⇧ SPACEBAR	Selects or de-selects *all* items in a list.
⇧ + ▶	Selects a range in a text field by highlighting it. (Use any arrow key.)

To select items in a list:

Highlight the item. (▲ and ▼ move the highlight bar.)
Press SPACEBAR. This marks the item with a ◆. This is a toggle: pressing SPACEBAR again de-selects.
Repeat to select more items.

◆To select all items at once, press ⇧ SPACEBAR. This is also a toggle.

Deleting items in lists

To delete items in a list:

Highlight the item. If you want to delete more than one item, press `SPACEBAR` *to select each item.*
Press `DEL` `F10` *to delete all selected items.*

Standard menu commands

Every application has its own set of menus. However, there is a core group of menus that is common across most applications, particularly those for Personal Information Management. Because of the different purposes of the different applications, not all the standard commands are in every application.

Pressing `MENU` *in an application displays its main menu. The* **standard menu commands** *are:*

```
File   Edit   View   Options      Quit   Help
```

File menu: To manage files, such as opening, copying, and printing.
Edit menu: To edit text or entire records, such as copying, deleting, and undoing.
View menu: To display different portions or perspectives of information, such as subsets, split screens, and mail lists.
Options menu: The options vary widely among applications.
Quit: To exit the current application.
Help menu: *To read online Help information.*

Many menu commands have alternative access on function keys or keyboard keys. For instance, the Edit menu includes Delete, which is the same as pressing `DEL`.

Using file commands

Specifying files

Many File commands in PIM, the Calculator, Pocket Quicken, cc:Mail, and Datacomm ask you to specify a file name to act upon. The palmtop uses

standard MS-DOS file naming conventions.

Current drive
and directory.

Default filename extension
(automatically supplied).

```
                    Open a File
File to Open  █*.DOC      █
Directory: C:\                              ┌──────┐
Files:              Directories:            │  OK  │
┌────────────────┐  ┌────────────────┐      └──────┘
│MONTH.DOC       │  │ DAT            │
│WEEK.DOC        │  │[-A-]           │      ┌────────┐
│YEAR.DOC        │  │[-B-]           │      │ Cancel │
│                │  │[-C-]           │      └────────┘
│                │  │[-D-]           │
│                │  │[-E-]           │
│                │  │[-G-]           │
└────────────────┘  └────────────────┘
```

In this box, pressing
▼ changes the
current file.

In this box, pressing
▼ F10 changes the
current directory.
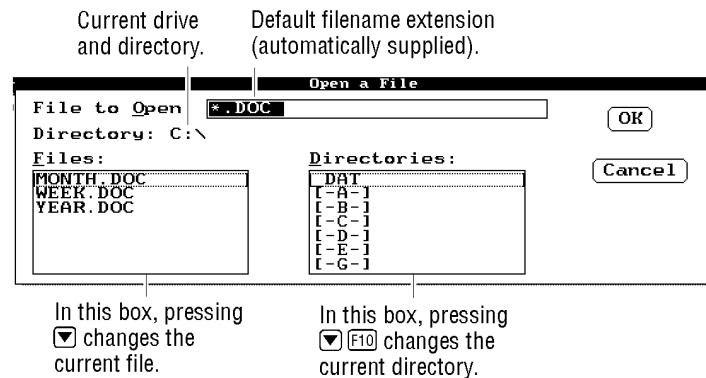
Dialog Box for File Open

To specify the file name in a dialog box:

Type in the full file name yourself.

or

Select the file name and/or directory using the Files and Directories list boxes. This is a memory aid if you don't remember all the existing directory and file names. It is also a shortcut to typing.

To type the file name yourself:

Type the file name into the file name text box. If the current directory shown below this box is not correct, then type the full path name (drive:\directory\...\filename).
Press [F10].

To select the file using the list boxes:

If the Files box shows the file you want, tab to the Files box and highlight the file name. Press [F10].

If Files does not show the file you want, then check other drives and directories:

Tab to the Directories box and highlight the directory or drive you want. Drive specifications appear as [-A-]*, etc. The parent directory appears as* ..*.*

Press F10 *(or* ENTER*) to change the current directory or drive and display its files.*

If the file you want appears in the Files box, then select the Files box (press ALT *+* F*, highlight the file you want, and press* F10*.*

To view files in the current directory (wildcards):

You can use wildcards to display all files matching a certain name pattern. The wildcard * *stands for any number of characters. The wildcard* ? *stands for any one character.*

In the file name text box, type the file names you want to search for. For instance, *.doc *stands for all files with the extension .DOC.*

Press F10*. This displays a list of matching files in the Files box.*

Setting passwords for files

You can protect PIM files, 1-2-3 files, and Pocket Quicken files by using passwords. To protect your entire palmtop from being used, see Activating Password Protection near the beginning of this chapter. Once you set a password for a file, the file is not retrievable without the password.

Rules for the password:

It will be case-sensitive.

It can have up to 16 characters.

Any characters, including spaces, are valid.

To set or change a PIM or Pocket Quicken file's password:

Press MENU F W *(File Password) and follow the directions.*

You can password-protect a 1-2-3 file using the normal 1-2-3 method.

To delete a PIM or Pocket Quicken file's password:

Use MENU *File Password and leave the new password blank. (Do not press* SPACEBAR*.)*

Searching for specific text

The `Find` *function key (* F4 *) is present in the PIM applications (covered later in this manual) and in the Solver (covered in chapter 19).*

To find a text string:

While displaying a list or record, press F4 *(Find). Note that appointments and to-do items are searched separately—you must display the appropriate context.*

Fill in the box with the characters or text to search for.

Optional: Tab to and select the check boxes you want (press SPACEBAR *to change). One makes the search include the Note fields, and the other discriminates upper from lower case letters.*

Press F10 *or* F4 *(Next) to search forward from the current position.*

Or press F3 (Previous) to search *backward* from the current position.

To repeat the search, press ⇧ F4 *.*

A successful search stops when it finds the first instance of matching text. Either the matching text or the list item containing the matching text will be highlighted, depending on the current display. Lists do not display all the text that the full records do, so the matching text might not appear in the list.

If your records include extensive notes in the Note field, you can speed up a search by not checking Include Notes for the search.

Copying or moving information

The clipboard: copying, cutting, and pasting

The Clipboard is a buffer that saves the last item that was copied or cut. The Clipboard operations are COPY, CUT, and PASTE. These operations work within all built-in applications.

Clipboard Operations

Keys	Description
FN COPY	Copies the highlighted item or text or field into the Clipboard buffer.
FN CUT	Deletes the highlighted item or text or field

and stores it in the Clipboard buffer. DEL acts like CUT *without* saving to the Clipboard buffer.

FN PASTE   Copies the item or text or field from the Clipboard buffer into the list or text field where the cursor is.

To highlight a range of text:

Move the cursor to the beginning of the text, then press ⌂ + ▶ *to highlight the range you want.*

Pressing any arrow key cancels the highlighting.

To move or copy a piece of text:

Highlight the desired text range.
Press FN *CUT to move the text, or press* FN *COPY to copy it.*
Move the cursor to the new location for the selected text. This can be in a different application.
Press FN *PASTE.*

To move or copy an item in a list:

Highlight the item.
Press FN *CUT to move the item, or press* FN *COPY to copy it.*
Move the cursor to the new location for the item. This can be in a different application.
Press FN *PASTE.*

You cannot move or copy more than one item at a time.

About Moving and Copying an Item in a List

Copying or cutting an entry in a list copies its entire data record to the Clipboard buffer. Within an application screen you can move an entire entry (such as an appointment) around. Across applications, however, an entry can be moved or copied only as a piece of text, not as a complete record. For example, you cannot copy a Phone Book record to a Database list. However, you can copy its data fields (as unformatted text) to the Note field of a Database record or to a memo in the Memo Editor.

The format of the item that COPY or CUT copies into the Clipboard buffer is determined by the first Smart Clip definition (covered in the next section). By default, COPY and CUT copy all fields of the item into the Clipboard.

To delete a piece of text:

Highlight the desired text range. (Press ⎑ *+* ▶ *.)*
Press [FN] *CUT or* [DEL]. *CUT stores the deleted text in the Clipboard buffer, while* [DEL] *does not.*

Smart clip: copying multiple data fields from records

Smart Clip is available in the PIM applications and uses the Clipboard to copy formatted information quickly from predefined fields in the current application to another location (a memo or a text field). You might want, for example, to quickly copy several fields of information from a database to a memo in the Memo Editor or to a note in the Note Taker.

In most PIM applications, `Clip` *provides predefined field-copying choices. In addition, you can define your own Smart Clips and control the formatting (the layout) of Smart Clip fields.*

To define your own Smart Clip:

In a database, press [F5] *(Clip).*
Press [F2] [F2] *(Define Field). Select a field name.*

Optional Formatting. This group box is only for arranging fields in columns. Otherwise, leave this field blank and the correct width is automatically determined.

Suppress Line if Empty. If checked, this suppresses a carriage return after the specified field *if* the selected record has no data for that field. This prevents missing data from producing a blank line in the clipped output. This option inserts the code ⌐? into the Smart Clip definition.

Reverse Name. If checked, this reverses the order of the names in a field, such as the Name field in the Phone Book. Names usually appear in a record last name first. Reverse Name would switch Doe, Jane to Jane Doe.

Press [F10] *when done defining the field.*

To add another field, add space (press SPACEBAR*) or start a new line (press* ENTER*). Press* F2 *again and fill out the dialog box as above. You can add as many fields as you want. Press* F10 *when done.*

You can also enter text or punctuation among the fields, including a final carriage return (ENTER*) to separate records of text. For example:*

Supress Line if Empty.

All of these check boxes will be clipped, checked or unchecked.

```
            Edit Smart Clip Definition
▶Restaurant◀, ▶Category◀ food
▶Address▶,?◀
▶Phone◀
Serves ▶Breakfast◀, ▶Lunch◀, ▶Dinner◀, Sunday ▶Brunch◀
▶Expensive◀▶Moderate◀▶Inexpensive◀
█


     Help  │ Field  │      │ Edit █      │      █      │      │      █ Cancel │  OK
```
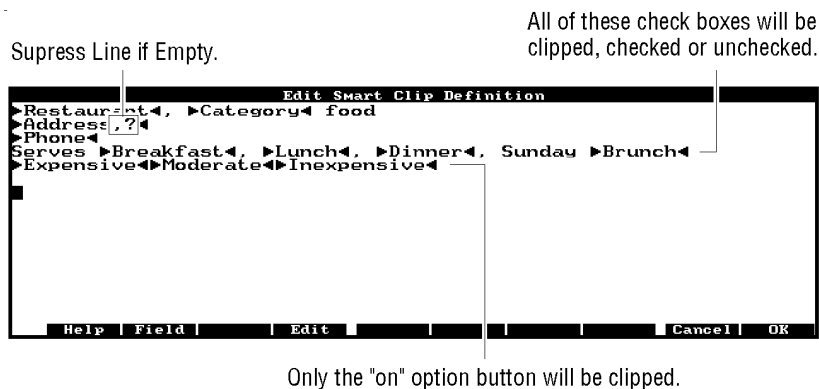
Only the "on" option button will be clipped.

A Smart Clip with Extra Text and Punctuation

Press F10 *when done with the Define Smart Clip screen.*

Type a name for this Smart Clip definition and press F10*. If you do not supply a name, then the new Smart Clip definition is named "Unnamed". However, the next unnamed Smart Clip definition will overwrite (replace) the previous one.*

The Smart Clip is now defined, named, and ready to use. Press ESC *to exit the Smart Clip screens. Or press* F10*, which clips the defined fields from the specified records, if any, and saves them in the Clipboard.*

If you want to use this Smart Clip now, then follow the next procedure.

To clip information from a PIM application:

Select the records whose information you want to clip:

To select one record, highlight that entry in the list or open its record.

To select more than one record, mark each desired record by highlighting it in the list and SPACEBAR.

To select (or de-select) all records in the current list, press MENU E A.

Press F5 *(Clip) to display the Smart Clip list.*

Highlight the Smart Clip you want and press F10.
*Open the application and the record into which you'd like to copy this
    information.*
Tab to the text field that should receive this information. A text field *is any
    part of a memo, or any field meant for entering text, like an appointment
    Description or a Note field.*
Press FN *PASTE.*

```
Memo:                                            01/19/94  2:03 PM
MODIFIED                   INSERT       ASCII     LINE: 28    COL: 9
1        2        3        4        5        6        7
Moderate

Old World, Deli food
554-0321
Serves [X] Breakfast, [X] Lunch, [X] Dinner, Sunday [ ] Brunch
Moderate

Tarntip, Thai food
Albany
555-1230
Serves [ ] Breakfast, [X] Lunch, [X] Dinner, Sunday [ ] Brunch
Moderate


    Help  | Bold |Underln| Find |Fnd&Rep|PrtFld|Promote|Demote|  Open | Save
```

Using Smart Clips with Check Boxes and Option Buttons

A check box field in a Smart Clip definition appears as the
    named check box when you paste the Smart Clip for the
    selected records. The check box will be checked or
    unchecked, depending on its status in a record.

An option button in a Smart Clip definition appears as just its
    field name (without the button) when you paste the Smart
    Clip *if* the option button is turned on in a record. If a button
    is off, then nothing will be clipped.

*When including option buttons in a Smart Clip definition, you should include
    all of them from the same group, since option buttons are mutually
    exclusive and only the one that is "on" in a record will be clipped.*

To edit or rename a Smart Clip:

In a PIM application, press F5 *(Clip).*

Highlight the desired Smart Clip.
Press F3 *to rename the highlighted Smart Clip.*
Press F4 *to edit the highlighted Smart Clip.*

   Press DEL to delete the highlighted field.
   Press F4 to edit the highlighted field.
   Press F2 to add another field.

Press F10 *when done. Press* ESC *to exit the Smart Clip screens.*

To delete a Smart Clip definition:

In a PIM application, press F5 *(Clip).*
Highlight the Smart Clip you want to delete.
Press F7 F10 *(Delete OK).*

To restore a Smart Clip definition you have just deleted (or edited), escape the Smart Clip list, then select MENU *Edit Undo. Use undo before doing another operation.*

Getting answers fast: online help

The fastest way to get information about how to use any application is to use the built-in online Help *information.*

Press F1 *at any time to see* context-sensitive Help; *that is, information regarding your current situation on the palmtop (the current menu, display, or pending operation). (In the Datacomm application, press* CTRL + F1

The Help menu offers different types of Help. Press MENU H *to display it.*

Command	Description
Index	List of Help topics for the current application.
Getting Started	Basic use of the palmtop. Not application-specific. A good place to start learning about your palmtop.
How to Use Help	Keystrokes in the Help system.
About *application*	Copyright and version information.

Here is a typical help screen from the Appointment Book:

```
HpptBook:HPPT.HDB          Hppointments          01/15/94 11:09 aM
Week 4                   Appointment List                    94
 •                                                      Fr Sa
       8:  See Appointment Book Overview for general          7  1
       9:  information about this application.                  14 (15)
      10:                                                       21 22
      11:  Press MENU V A to display daily schedule.           28 29
      12:  Vertical line indicates duration of item,
       1:  musical note indicates alarm is set, bullet    Ment
       2:  indicates item repeats, and + indicates item has
       3:  note.                                           t
       4:
       5:  Use arrows to move highlight (current date)
       6:  changes accordingly).
       7:
       8:
       9:
   Index |      |HlpKeys|       ■      | PgUp | PgDn | Back ■ Cancel |
```

Help index.   Help instructions.   Other pages of   Previous Help   Exit Help.
                                       the same topic.   topic.

A Typical Help Screen

The outlined words are links *to more Help topics. To find out what "current date" means, for instance, press* ▼ *to move the highlight to* current date*, then press* ENTER*.*

To return to the previously displayed Help topic, press F8 *(Back).*

Press ESC *or* F9 *(Cancel) to exit the Help system.*

What about games?

Your HP 200LX has two games built in: Hearts & Bones and Lair of Squid.

See Appendix F for instructions on starting the games.

2
About 1-2-3

Because the vast majority of our customers are already Lotus®
1-2-3® users and have requested *less* product documentation,
this chapter describes only the features of 1-2-3 Release 2.4
that are particular to your palmtop.

If you want additional documentation, there are excellent books
about using 1-2-3 available—visit your local bookstore for a
recommendation. And remember, HELP is always available;
just press [F1] (HELP) to get online information about the 1-2-
3 command you are using.

No Installation Required. To start 1-2-3 simply press [123]. The
default display size is 64 columns x 18 lines.

```
A1:                                                          READY

          A        B       C       D       E       F
   1
   2
   3
   4
   5
   6
   7
   8
   9
   10
   11
   12
   13
15-Nov-93  11:55 AM
```
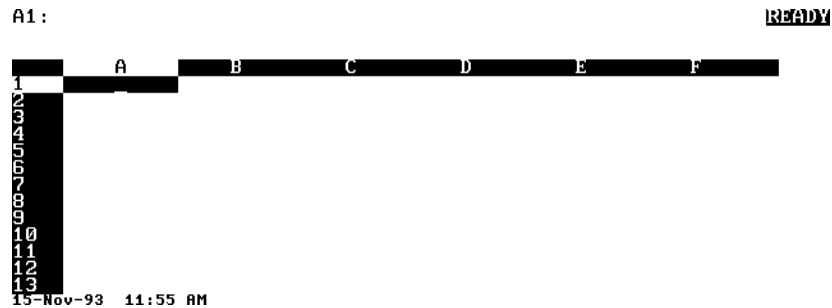
Pressing [FN] ZOOM (that is, [FN] followed by the spacebar) switches back and forth between the 64-column x 18-line display and an 80-column x 25-line display (the common PC screen size). Try it and watch the screen size change. With the help of the Connectivity Pack, you can transfer worksheets between your palmtop and another PC. The Connectivity Pack for your palmtop is available from your HP dealer.

To enter, edit, and move around a worksheet:

You enter the data, labels, formulas, and formats as you would in any version of 1-2-3.

You edit cells as you would expect, using [←] (backspace), [DEL] (delete), [F2] (EDIT), and [F5] (GOTO).

You move around the worksheet as you would expect, using arrow keys and cursor-movement keys. Note that PGUP, PGDN, HOME, and END are [FN]-shifted keystrokes (for example, you press [FN] then [◄] to execute HOME).

To leave 1-2-3:

You can either quit 1-2-3 ([MENU] [Q]), or simply press another application key.

Differences between 1-2-3 on the palmtop and 1-2-3 release 2.4 on the PC

Although the palmtop version of the 1-2-3 Release 2.4 is essentially the same as the packaged version for your PC, there are some important differences. Even if you're a 1-2-3 expert, you should read the following descriptions of the additions, deletions, and modifications to your palmtop 1-2-3.

Additions to 1-2-3 on the palmtop

Backsolving 1-2-3 values using the Calculator.
Clipboard functions for copying material from one location to another: FN COPY copies a defined range to the Clipboard, and FN PASTE inserts this material into the current location.

Deletions from 1-2-3 on the palmtop

The Install utility: No installation is necessary on the palmtop. The collating sequence (sorting order) and the printer configuration are set in the Setup utility.
The landscape printing option.
WYSIWYG and color support.
Mouse support.
The Tutorial add-in and tutorial files.
The Translate utility.
The Access system (to access PrintGraph, Translate, and 1-2-3).
The SmartIcons add-in.
The SmartPics™ files.
The Backsolver add-in.
The Background printing option.
The PrintGraph program. However, you can print a displayed graph by pressing FN PRTSC.
The Viewer and Auditor add-in.
The Macro Library Manager.

Modifications to 1-2-3 for the palmtop

Write-protected cells appear no different from other cells. The PR protection indicator appears in the control panel when a protected cell is highlighted.

Because of ROM memory constraints, the Help text is less extensive.

The macro commands {BIGLEFT}, {BIGRIGHT}, {PGUP}, and {PGDN} will operate differently depending on whether your palmtop is displaying 64 columns x 18 lines or 80 columns x 25 lines.

There is no 123.EXE file, so you cannot start 1-2-3 from DOS.

To save memory, the default status for the Undo feature is off (disabled). Select /Worksheet Global Default Other Undo Enable to turn Undo on.

Add-ins must be run from RAM. To work, therefore, an add-in must fit in RAM, must work with any size screen in MDA or CGA mode, and must have been developed using the Add-In Toolkit specifications.

The collating sequence for 1-2-3 can be set only in the Setup utility.

About configuration settings

1-2-3 can specify many configuration settings under / Worksheet Global Default. The Setup utility (&... S) establishes many other settings for the palmtop, *including for 1-2-3*. A few settings appear in *both* Setup and 1-2-3: date format, time format, punctuation, currency, and printing (interface and baud).

Setup's time and date formats do not affect 1-2-3 cells.

Setup supplies **default** (initial) values to 1-2-3 for punctuation and currency, as well as for the printer interface, baud, and name.

If you make a printer, punctuation, or currency setting in 1-2-3,

it overrides the setting in Setup.

Remember that for a /Worksheet Global Default setting command to remain in effect after the current session, you must preserve it with the Update command. Otherwise, the settings for the next session will take default values from Setup again.

To set the printer configuration:

Press &... S MENU O P to select the printer configuration screen in Setup.

If you're not already there, tab to the baud group box.

Use the arrow keys to select the specific baud for your printer (the default is 9600).

Tab to the interface group box.

Use the arrow keys to select the interface. Com1 is the default, and there is currently no HP infrared printer available.

Tab to the list box containing the list of printers.

Use the arrow keys to highlight the name of the printer that is compatible with yours. A Kodak Diconix printer, for instance, can have its option switches set to be compatible with either the Epson or the IBM. You then select the Name setting in Setup that matches the printer's compatibility.

Press F10 to save your settings.

Press MENU Q to exit Setup.

3
The Appointment Book

When you first start the Appointment Book (press ⏰), you see the daily appointment list, which is a schedule of the day's appointments.

Alarm set. ———
Note included. ———

Repeating appointment.

Shows duration of appointment.

```
ApptBook:APPT                    Appointments
Week 2      Friday January 13, 1995        13/352
        8:00a Teleconference European office
        9:00
       10:00   Staff mtg
       11:00
       12:00p Group luncheon
        1:00
        2:00
        3:00   Call MJ
        4:00
        5:00
        6:00
        7:00
        8:00   Fund raiser
        9:00
      Help │ Add │ Note │ Find │ Goto │6 Mon│ Month
```

These labels correspond to the function keys (F1 – F10).

ENTER opens the record for the highlighted appointment.

In the daily appointment list use ▲ or ▼ to highlight an appointment, then press ENTER to see the appointment **record**.

```
ApptBook:APPT            Appointment/Event        01/13/95  1:31 am
Description  Group luncheon
Start Time   12:00pm              Start Date   1/13/1995
End Time     1:00pm               No. Consecutive Days  1
Location     Bunsen's Burner
┌Alarm──────────────────┐        ┌Views──────────────────┐
│ ☑ Enabled             │        │  ☑ Week      ☑ Month  │
│ Leadtime  15          │        └───────────────────────┘
└───────────────────────┘        Repeat Status: Monthly
Note
       Help │ Add │ Note │ Find │ Clip │Calendr│     │ Repeat │Cancel│ Done
```

Example Appointment Record

From an appointment record, you can return to the appointment list by pressing F10 (to save any changes) or F9 (to cancel

any changes). From the appointment list,
To see a weekly appointment list, press ⌷F8⌷ (Week).
To see a monthly list, press ⌷F7⌷ (Month).
To return to the daily appointment list, press ⌷F9⌷ (Appt).

Scheduling appointments

To schedule an appointment:

Press ⌷🕐⌷ *to start the Appointment Book*

Press ⌷MENU⌷ ⌷A⌷ ⌷A⌷ *to display the screen to add an appointment. As a shortcut, you could instead press* ⌷F2⌷ *(Add).*

Fill in the fields. Use ⌷TAB⌷ *or* ⌷ALT⌷ +*underlined letter to move among them; use* ⌷SPACEBAR⌷ *to check/uncheck a box.*

Description. *This text provides the entry for the appointment list.*

Start and End Times. *The End Time is optional. Pressing* ⌷+⌷ *or* ⌷-⌷ *changes the time by fifteen minutes.* ⌷⇧⌷ ⌷+⌷ *and* ⌷⇧⌷ ⌷-⌷ *change the time by one minute.*

Location. *Optional. This information also appears in the appointment list, following an* @.

Alarm. *If the alarm is enabled (box checked), the palmtop will beep for the appointment. Press* ⌷SPACEBAR⌷ *to disable the alarm (box not checked) for that one appointment. The* **leadtime** *sets how far ahead of the appointment time the alarm will go off.*

Note. *Optional. The Note field provides a large field for any additional information. Pressing* ⌷F3⌷ *(Note) displays a full-screen note.*

Start Date. *Pressing* ⌷+⌷ *or* ⌷-⌷ *changes the date by one day.*

No. Consecutive Days. *If the appointment goes for more than one day, fill in No. of Consecutive Days (or set a Daily Repeat Option).*

Views. If these boxes are checked, this appointment shows up in the weekly and monthly appointment lists (schedules).

Optional: Press ⌷F8⌷ *(Repeat) to specify a repeating appointment.*

Press ⌷F10⌷ *when done. Or press* ⌷ESC⌷ *to cancel the information.*

Repeat Options

Frequency	Other Specifications	Examples
No Repeat	Cancels the existing repeat option, if any.	
Daily	Interval can be any number of days.	Every 5th day; every 30th day.
Weekly	Interval can be any number of weeks.	Every Wednesday; every other Friday.

Monthly	Interval can be any number of months. Can specify by date or by position in the month. The 7th of every month; the first Wednesday every 3 months.
Yearly	Interval can be any number of years. Can specify by date or by position in the year. August 7th every 2 years; the first Wednesday in August every year.
Custom	Can specify by date or by day position in specified months. The 7th of January, April, and October every year; the first and third Monday and Wednesday in June, July, and August every year.

Example: Scheduling an Appointment. Schedule a dental appointment for 2:30 pm on July 15, 1994. Set the alarm to go off 30 minutes prior to the appointment to give you time to drive to the dentist's office.

Keys: **Description:**

⌚   Starts the Appointment Book.

MENU A A   Opens up an appointment record.

Dentist   Fills in the Description field.

TAB 2.3p   Sets the start time of 2:30 pm.

TAB   Moves to the End Time field. The default end time is an hour after the start time. Since an hour is about right, there's no need to type in another end time.

TAB Suite 324   Highlights and fills in the Location field.

ALT + L 30 Skips to the Alarm Leadtime field and enters 30 minutes (the default is 5 minutes). Pressing ALT along with an underlined letter takes you directly to that field.

TAB Brush before leaving.   Enters a note to yourself.

TAB 7/15/94 Enters the date of the appointment.

```
ApptBook:APPT          Appointment/Event        07/10/94  2:25 pm
Description Dentist
Start Time  2:30pm            Start Date  7/15/1994■
End Time    3:30pm            No. Consecutive Days   1
Location
┌Alarm────────────────────┐   ┌Views──────────────────┐
│ ☑ Enabled               │   │ ☑ Week        ☑ Month │
│ Leadtime 30             │   └───────────────────────┘
└─────────────────────────┘   Repeat Status: None
Note
    Help │ Add │ Note │ Find │ Clip │Calendr│   │Repeat│Cancel│ Done
```

[F10]	Saves this appointment and displays the appointment list for July 15, 1994.
[F5] [F4]	Restores today as the current date.

On July 15 an alarm will sound at 2:00 pm to remind you of your dental appointment. You simply press [ESC] to clear the alarm.

Example: Scheduling a Bi-Weekly Repeating Appointment.
Schedule a repeating appointment for your bi-weekly staff meeting, which is held in Shasta Room every other Wednesday at 9:30 am.

Keys:	**Description**:
[⌚]	Starts the Appointment Book.
[MENU] [A] [A]	Opens up an appointment record.
Staff Mtg	Fills in the Description field.
[TAB] 9:3a	Sets the start time of 9:30 am
[TAB] 11	Sets an end time of 11:00 am.
[TAB] Shasta Room	Highlights and fills in the Location field.

[ALT]+[N]. Take donuts and agenda. Enters a note to yourself. Pressing [ALT] along with an underlined letter takes you directly to that field.

[F8] [W] Opens the Weekly Repeat Options for you to fill out.

[TAB] 2 Sets the appointment to repeat every other week.

[TAB] W Sets its day to be Wednesday.

[TAB] Highlights the default starting date, which is tied to the Start Date in the appointment record.

[TAB] Highlights the default ending date, which defaults to 5 years from the Start Date. Enter another date if that duration is too long.

```
ApptBook:APPT        Appointment/Event        07/10/94  3:12 pm
                    Weekly Repeat Options
 ○ No Repeat  ○ Daily  ◉ Weekly  ○ Monthly  ○ Yearly  ○ Custom
 ┌Frequency─────────────────┐ ┌Duration──────────────┐ ┌──────┐
 │Repeat every │1│ week(s)  │ │Starting: │7/13/1994│ │ │  OK  │
 │                          │ │Ending:   │7/13/1999│ │ └──────┘
 Day of Week                  └──────────────────────┘ │Cancel│
 │Wednesday ▼│
 
    Help                              Cancel   OK
```

[F10] Saves this repeat information and returns you to the appointment record. Notice the Repeat Status below the Views box.

```
ApptBook:APPT          Appointment/Event        07/10/94  1:39 am
Description Staff Mtg
Start Time   9:30am                Start Date  7/13/1994
End Time     11:00am               No. Consecutive Days  1
Location     Shasta Room
┌Alarm─────────────────────────┐   ┌Views─────────────────────┐
│ ☑ Enabled                    │   │ ☑ Week        ☑ Month    │
│ Leadtime 5                   │   └──────────────────────────┘
└──────────────────────────────┘   Repeat Status: Weekly
Note Take donuts and agenda.
    ▌ Help ▐ Add ▐ Note ▐ Find ▐ Clip ▐Calendr▐    ▌Repeat▐Cancel▐ Done ▐
```

F10 F5 F4   Saves this record and returns you to the
               appointment list for today. Now, every other
               Wednesday an alarm will sound 5 minutes
               before your staff meeting; simply press ESC
               to clear the alarm.

To set a snooze alarm:

When an alarm goes off, press SPACEBAR. This sets the alarm
   to recur in 5 minutes. Any past-due alarm then appears.
To postpone the display of past-due alarms until after the
   snooze interval, press FN SPACEBAR.
For a longer snooze interval, press SPACEBAR up to 11 times
total. Each press equals 5 minutes. Press ← to decrease the
snooze interval by 5 minutes.

To schedule an event:

An **event** is an item associated with a day but not a time.
In the Appointment Book, press MENU A E. This opens an
appointment record with the Start Time and End Time fields
preset to None for an event.
Fill in the rest of the fields as for adding an appointment.
Press F10 when done.

Example: Scheduling a Yearly Repeating Event. Oregon's trout
fishing season regularly opens the last Saturday in April.
Schedule the annual opening day as a repeating event.
Keys: **Description:**

⏲	Starts the Appointment Book.
MENU A E	Opens up an appointment record for an event.
Trout season opens	Fills in the Description field.
ALT + C Oregon	Fills the Location field.
TAB Plan a trip to Odell Lake	Enters a note.
F8 Y	Selects the Yearly Repeat Options.
ALT + P	Moves to the Repeat By Day Position field.
TAB L	Selects Last.
TAB S	Selects Saturday. If Sunday appears, press S again to see Saturday.
TAB A	Selects April. If August appears when you press A, press it again to see April. This completes selecting the last Saturday in April.
ALT + E 5/01/2005	Sets the event to repeat until May 2005.

```
ApptBook:APPT        Appointment/Event      01/13/95  1:42 am
                    Yearly Repeat Options
○ No Repeat  ○ Daily  ○ Weekly  ○ Monthly  ● Yearly  ○ Custom

┌Frequency────────────────┐ ┌Duration───────────┐  ┌──────────┐
│Repeat every │1│ year(s) │ │Starting: │7/13/1994││  │    OK    │
└─────────────────────────┘ │                    │  └──────────┘
                            │Ending:   │5/01/2005││  ┌──────────┐
┌Yearly Repeat Type────────┘ └───────────────────┘  │  Cancel  │
│ ○ By Date        │7/13         │                   └──────────┘
│ ● By Day Position │Last ↧│ │Saturday ↧│ in │April        ↧│
└──────────────────────────────────────────────────────────────┘

   Help                                          Cancel   OK
```

F10 F10	Saves the record and returns you to the appointment list at the date of the first occurrence. Now, the opening of Oregon's trout season will appear on your appointment list as a repeating event.

Types of appointment lists

There are daily, weekly, and monthly **appointment lists** (schedules), as well as a six-month calendar.

Week number in year.   Days remaining in year.   Today's date.

```
ApptBook:APPT        Appointments         01/15/95   7:27 pm
Week 2     Friday  January 13, 1995   13/352      January 1995
      [  8:00a                                  Mo Tu We Th Fr Sa
1        9:00                                        2  3  4  5  6  7
3    ⊟♪[10:00    Staff mtg                        9 10 11 12 13 14
5       11:00                                  ⟨15⟩16 17 18 19    21
7      [12:00p                                  22 23 24 25 26    28
9        1:00                                  29 30 31
11       2:00
1     ♪[ 3:00    Call MJ                        Next Appointment
1     [[ 3:15    Pick up books                 1/25  9:30a Staff Mtg
3        4:00                                        ToDo List
5        5:00                                  ⊟1   Pay Dildre 01/15/
7        6:00                                   2   Type minutes
9        7:00
11       8:00
    Help │ Add │ Note │ Find █ Goto │6 Month│ Month │ Week │ │ ToDo
```

Appointment date.

Daily Appointment List (Appt)

Symbol   Meaning

Symbol	Meaning
●	Repeating appointment.
⊟	Appointment includes Note.
♪	Alarm.
[	Duration of appointment.

Current appointment.   Overlapping appointments.   Today's date.

```
ApptBook:APPT.ADB              Week           01/15/94 11:56 am
Jan '94│Sun    9│Mon  10│Tue  11│Wed  12│Thu  13│Fri  14│⟨Sat  15⟩
                        │Book Fai│Book Fai│
 9:00a │. . . .│. . . .│. . . .│. . . .│Help at│Take fin│. . . .
10:00  │. . . .│. . . .│. . . .│. . . .│       │        │. . . .
11:00  │. . . .│Evaluati│. . . .│. . . .│. . . .│Call Bos│. . . .
12:00p │. . . .│session│Pick up│. . . .│Pick up│Lunch w/│. . . .
 1:00  │        │        │. . . .│. . . .│       │        │. . . .
♪2:00  │Lap swim│. . . .│. . . .│. . . .│       │. . . .│. . . .
 3:00  │. . . .│. . . .│. . . .│. . . .│Project│. . . .│. . . .
 4:00  │. . . .│. . . .│. . . .│. . . .│meeting│. . . .│. . . .
 5:00  │. . . .│        │. . . .│. . . .│▨▨▨▨▨▨│Dentist│. . . .
 6:00  │. . . .│Soccer p│. . . .│. . . .│       │Meet w/│. . . .
 7:00  │. . . .│. . . .│. . . .│. . . .│. . . .│. . . .│. . . .
   Help │ Add │ Note │ Find │ Goto │6 Month│ Month │ │ Appt │ ToDo
```

Weekly Appointment List (Week)

A multiple-day event.　　　　　　　　　　　　　Today's date.

```
ApptBook:APPT                   January 1994            01/15/94  6:13 pm
    Sunday       Monday      Tuesday   Wednesday    Thursday     Friday    S turday
            26          27          28          29          30          31          1
                    xStaff Retr xStaff Retr xStaff Retr xStaff Retr
             2           3           4           5           6           7          8
  -Lap swim                           Book Fair
             9          10          11          12          13          14         15
                                                             Pick up AA
            16          17          18          19          20          21         22
            23          24          25          26          27          28         29
      Help  |  Add   |     | Find   |  Got |6 Month|        |  Week  |  Appt  | ToDo
```

Current Appointment Book date.

Monthly Appointment List (Month)

Symbol Meaning

-　　　　　　p.m. appointment.

x　　　　　　Event.

…　　　　　　More appointments.

Current Appointment　　　　　Today's date.
Book date.

```
ApptBook:APPT.ADB              6 Month Calendar          01/15/94 12:07 pm
        January    94                February 1994              March 1994
    Su Mo Tu We     Fr            Su Mo Tu We Th Fr Sa       Su Mo Tu We Th Fr Sa
                 1                           1  2  3  4  5            1  2  3  4  5
     2  3  4  5     7             6  7  8  9 10 11 12        6  7  8  9 10 11 12
     9 10 11 12    14 (15)       13 14 15 16 17 18 19       13 14 15 16 17 18 19
    16 17 18 19 20 21 22         20 21 22 23 24 25 26       20 21 22 23 24 25 26
    23 24 25 26 27 28 29         27 28                      27 28 29 30 31
    30 31
         April 1994                     May 1994                  June 1994
    Su Mo Tu We Th Fr Sa         Su Mo Tu We Th Fr Sa       Su Mo Tu We Th Fr Sa
                    1  2                     1  2  3  4              1  2  3  4
     3  4  5  6  7  8  9          8  9 10 11 12 13 14        5  6  7  8  9 10 11
    10 11 12 13 14 15 16         15 16 17 18 19 20 21       12 13 14 15 16 17 18
    17 18 19 20 21 22 23         22 23 24 25 26 27 28       19 20 21 22 23 24 25
    24 25 26 27 28 29 30         29 30 31                   26 27 28 29 30
      Help  |       | Month-| Month+|  Goto  |       | Month | Week  |  Appt  | ToDo
```

Six-Month Calendar (6 Month) — No Appointments

Moving Around Appointment Lists

Keys	Description
▲, ▼	Moves the highlight bar through times, days, weeks, or months, depending on the display. If the highlight moves to a different day, that becomes the current date.
⟨⇧⟩ ▲, ⟨⇧⟩ ▼	Moves the highlight to the previous/ next week.
◄, ►	Moves the highlight to the previous or next day.
FN PG UP, FN PG DN	Moves the highlight to the previous/next day part, month, or half-year (depending on the context).
FN HOME, FN END	Moves the highlight to the beginning/end of the current day, or to the first/last displayed date (depending on the context).
CTRL +◄, CTRL +►	Moves the highlight to the previous or next day that has an appointment or event.
CTRL +▲, CTRL +▼	Moves the highlight to the previous or next appointment or event.
TAB	Moves the highlight between appointments and events. If no events, it just beeps.

To view all the events for a month:

In the Appointment Book, press MENU V E *(View All-Events).*
Press F9 *(Appt) to return to the daily appointment list.*

Tips for scheduling:

Check your schedule before adding a new appointment. Check your monthly (` Month `), then weekly (`  eek `), then daily schedules for successive overviews of available days and times.

Another way to start adding an appointment: When an appointment list is displayed, any typed character will automatically open the appointment record and start filling in the Description field.

An alternative to filling in the Start Date field in the appointment record is to change the current date *before* executing Add. Use the arrow keys or Goto function to change the current date.

Filling out the appointment record: Another way to fill in the Date fields is to call up the small, one-month calendar (press F6). Use arrow keys to highlight a date in the calendar. When you press ENTER, the calendar's date will be recorded in the Date field.

Filling out the appointment record: The Time and Date fields accept any delimiter characters (:, /, space, ., or ,) for the date and time. For example, typing 11 SPACEBAR in the Time field enters 11:30am, and typing 9p enters 9:00pm. Typing 11.3 in the Date field enters November 3 (in the current or next year, as appropriate).

Filling out the appointment record: To enter an afternoon time, type p, pm, or use 24-hour time.

To change the displayed time intervals in a daily or weekly appointment list (schedule), press FN ZOOM.

Changing the current date

Note

The current date *is the date currently displayed or highlighted. This is not the same as* today's date *(the* system date*), which can be changed only via the Setup utility.*

Starting from a list, you can change the current date to the next day by pressing ▶ and to the previous day by pressing ◀. Try it and notice how the date changes.

To change the current date to any date (Goto):

Start from any list (daily, weekly, monthly, 6-month, or To-Do). If necessary, press ESC *to display a list.*

Press F5 *(Goto).*

Type the date to go to and press ENTER*. As a shortcut, try using the arrow keys.*

When you press F5 (Goto), you can also use the Goto function keys. TAB moves the cursor between the calendar and the date box.

Function Keys for Goto (F5)

Key Label	Changes the Current Date
nDay , **nDay+**	Backward or forward *n* number of days, which you specify.
Today	To today's date.
Month- , **Month+**	Backward or forward one month.
Year- , **Year+**	Backward or forward one year.

Editing and deleting appointments

To edit (change) an appointment:

Start from the daily (or weekly) appointment list. Press **Appt** *, if necessary.*

If necessary, change to the desired date (use **Goto** *).*

Use the arrow keys to highlight the appointment you want to edit.

Press ENTER *to display the appointment record.*

Tab to and edit the field you want to change. Try using $\boxed{+}$ *and* $\boxed{-}$ *when you edit the time, date, and alarm fields.*
Press $\boxed{F10}$ *to save your changes. Or press* $\boxed{ESC}$ *to cancel them.*

To change a repeating appointment to a one-time appointment:

Open the record for the date that you want to keep. Highlight the repeating appointment you want to change.
Press $\boxed{F8}$ *to display Repeat Options.*
Arrow to the option button No Repeat.
Press $\boxed{F10}$ *three times (to confirm the change).*

To delete an appointment:

Deleting an appointment removes it from the Appointment Book.
Start from the daily (or weekly) appointment list. Press **Appt**, if necessary.
If necessary, change to the desired date (use **Goto** *).*
Use the arrow keys to highlight the appointment to delete.
Press $\boxed{DEL}$.

If you highlight and try to delete an occurrence of a repeating appointment, you'll see the Repeating Item Delete dialog box.
If you want to delete just the one appointment, press $\boxed{F10}$.
If you want to delete more than one occurrence:
Press $\boxed{\blacktriangledown}$.
Tab to the range boxes and enter the range you want to delete.
Press $\boxed{F10}$ to delete the range. Press $\boxed{ESC}$ to cancel the delete.

To restore a deleted appointment (Undo):

Press $\boxed{MENU}$ $\boxed{E}$ $\boxed{U}$ immediately after the deletion.

To delete all appointments and to-do items before or after a date:

This deletes *all* Appointment Book entries for the given period.
If you want, you can save the removed items in an **archive** (back-up) file.

Press ⌗MENU⌗ ⌗F⌗ ⌗R⌗ (File Remove).

Specify a filename here *only* if you check here.

```
┌─────────────────────────Remove Items────────────────────────┐
│ ┌Remove All Appts, Events, and ToDos:──────────┐             │
│  ◉ Before  1/15/1994                                         │
│  ○ After   1/15/1994         ☐ Save Removed Items in Archive │
│                                                              │
│ Archive to *.ADB                                             │
│ Directory: C:\_DAT                                           │
│ Files:              Directories:          ┌────────────┐     │
│ APPT.ADB            [-A-]                  │     OK     │     │
│                     [-B-]                  └────────────┘     │
│                                            ( Cancel )         │
└──────────────────────────────────────────────────────────────┘
```

Dialog Box for File Remove

Highlight Before or After and specify the date.
If you want to save the deleted items in an archive file, check the appropriate
box and specify the name of the archive file.
Press ⌗F10⌗ *when done.*

Similarly, you can use File Extract (⌗MENU⌗ ⌗F⌗ ⌗E⌗) to back up ("extract") all items before or after a given date.

Running a program or system macro at a certain time

You can set an appointment to run a program or a system macro rather than set off an alarm.

For example, you could use this feature to set the palmtop to use a macro to automatically open Datacomm and log onto an information service (using a script file) during a low-use, low-cost time of night.

To set an appointment that runs a program or macro:

Press ⌗F2⌗ *or* ⌗MENU⌗ ⌗A⌗ ⌗A⌗ *to add a new appointment.*
Start the Description field with | for a program or || for a system macro. (| is
shifted ⌗\⌗ *key.)*
   For a program: *Follow the | with the full* **pathname** *(file name and*
   directory names) of the program to run. The program must have a .EXE,
   .COM, or .BAT extension, and it must exist already. An example of a
   Description to run the program SALESFIG (subdirectory SALES,
   subdirectory _DAT) is: |C:_DAT\SALES\SALESFIG.EXE
   For a system macro: *Follow the || with the number (1-10) of the macro to*

run.
***Fill out the other fields as for other appointments, except for these fields,
which have special meanings:***
Alarm. ***Must be enabled (checked) to run the program.***
Location. *Specifying* Q *(quiet) in this field suppresses any error message
that might result from running the specified program or macro.*
Press F10***.***

When the time comes and the program or macro runs, the
screen displays the result of the program or macro. A program
ends with the message, Press any key to exit from DOS...
Specifying Q for the Location suppresses this message and
returns the display automatically to the context that preceded
this "appointment".

Note

***A program cannot run if a DOS application is open when the
appointment comes due.***

To-do lists

To-do lists are much like appointment lists: You can view a list
of to-do items; and, if you want more details about an item, you
can display its record. Press F10 (ToDo) from an appointment
list to display the current day's to-do list.

Priority.   Due date.

```
Ap  tBook:APPT              ToDo List           01/13/95  1:51 am
W     2     Friday Janu  y 13, 1995     13/352         11   12
      1    ☀Pay Diedre 01/15/1995                   10  ·  ·  ·  1
      2    ☀Type minutes                          9   ·       ·  · 2
      1    ✓Get receipts                           ·  ·       · 3
     ▱1    ✓Return library books                  8   ·       ·  4
      3    ✓Call for estimate                         7  ·  ·  ·  5
                                                        6
                                               Next Appointment
                                             1/13  8:00a Teleconfere
                                                   Appointments
                                               ♪ 8:00a Teleconferenc
                                             ▱♪10:00   Staff mtg
                                             • ♪12:00p Group luncheo
                                               ♪ 3:00   Call MJ
                                               ♪ 8:00   Fund raiser
       Help  |  Add  |  Note  |  Find  ■  Goto |6 Month| Month |  Week  ■  Appt  |
```

A To-Do List

Symbol   Meaning

☀   Item new today (its first occurrence).

✓   Completed item (checked off).

!   Item due today (and not yet checked off).

☹   Item past-due (and not yet checked off).

▱   Item includes Note.

•   Repeating item.

☹▱☀

Highlight an item and press ⌈ENTER⌋ to see its complete record:

The first date the item appears.   Carries forward an item that is not checked off.

```
Appt  bok:APPT                ToDo             01/13/95  1:52 am
Desc  iption  Pay Diedre
Start Date   1/13/1995
Due Date     1/15/1995              ☑ Carry Forward
Priority     1
                                    Repeat Status: None
Note  Extra for snow days.


       Help  |  Add  |  Note  |  Find  ■  Clip  |Calendr|      |Repeat ■Cancel|  Done
```

A To-Do Item's Record

To add a to- item's due do item to the list:

In the Appointment Book, press [MENU] [A] [T]*.*
Fill in the fields. Use [TAB] *or* [ALT] *+letter to move among them.*
>   **Description.** *This will appear in the to-do list.*
>   **Start Date.** *The first date a to-do item appears. Pressing* [+] *or* [-] *changes the date by one day.*
>   **Due Date.** *Optional. If the to-do item has not been checked off, an exclamation point appears on the due date in the to-do list. Then, on subsequent days a sad face appears until the item is checked off.*

Priority. Every to-do item has a priority number (one or two digits and/or letters), which you can type in. The items are sorted by their priority; numbers are sorted before letters. Multiple items can have the same priority.

>   **Note.** *Optional. The Note field provides a large field for any additional information. Pressing* **Note** *(*[F3]*) displays a full-screen note.*
>   **Carry Forward.** *If this box is checked, then the to-do item reappears in each day's list until the item is marked as completed. Pressing* [SPACEBAR] *checks/unchecks this box. Note that Carry Forward repeats an item, using more memory.*

Press [F10] *when done. Or press* [ESC] *to cancel the information.*

To scan a to-do list:

Use the arrow keys to move the highlight bar through a list of items. When you want to see more details about an item, press [ENTER] to see its record; when you're done with it, press [ESC] to return to the list.

To check off a completed to-do item:

Highlight the completed item.
Press [-] *or* [SPACEBAR]*. The item is checked and moved to the bottom of the list.*
Highlighting it again and pressing [-] *or* [SPACEBAR] *clears the checkmark.*

More Information about To-Do Items

On a to-do date, an exclamation point appears next to it in the to-do list.

When the item is past due, a sad face appears instead.

You search, edit, and delete to-do items the same way you do appointments.

You can use **Repeat** (F8) to create repeating to-do items the same way you create repeating appointments.

Using multiple appointment books

You can create more than one Appointment Book file, thereby creating more than one appointment list in this application. Use MENU File New or MENU File Copy to create a new Appointment Book file. Use MENU File Merge to merge another Appointment Book file into the current one.

Only the Appointment Book currently open will activate alarms.

Translating appointment books

HP 100LX files need no translation to be used in your HP 200LX; they share the same file format.

To translate an HP 95LX Appointment Book to an HP 200LX Appointment Book:

Copy an HP 95LX Appointment Book file to your HP 200LX via the infrared serial port, a serial cable, or a plug-in memory card (see chapter 22).

In your HP 200LX Appointment Book, open (MENU File Open) the copied file, filename.ABK.

When prompted, specify a new file name (other than APPT) without any extension.

File Open then translates the .ABK file to an HP 200LX Appointment Book file, automatically supplying the extension .ADB. This operation can take 1 to 5 minutes for an average-sized Appointment Book.

Setting options and defaults for the Appointment Book

The options and defaults that you can set are

Clock display (in appointment list; in to-do list).

Calendar display (in appointment list; in to-do list).

Next-appointment display (in appointment list; in to-do list).

Graph of appointments (in appointment list; in to-do list).

Timeline—the time intervals shown for the daily appointment
list.

Default appointment and to-do settings.

Alarm volume and sound.

Daily greeting.

The Day Graph shows the   Your next appointment. Calendar (or clock).
duration of an appointment.
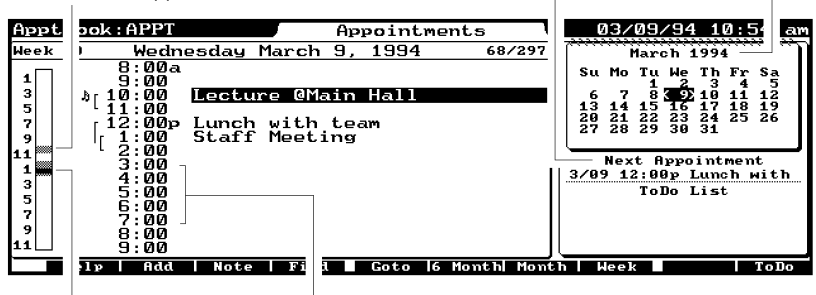
Overlapping appointments. Timeline.

Possible Components of an Appointment List

To change the clock, calendar, Next Appointment, or Day Graph in an appointment or to-do list:

For the appointment list, press [MENU] [O] [A] *(Options Customize-Appointments-View). For the to-do list, press* [MENU] [O] [O] *(Options Customize-ToDo-List-View).*

*Highlight the option button for the desired display: with a clock in the corner, a
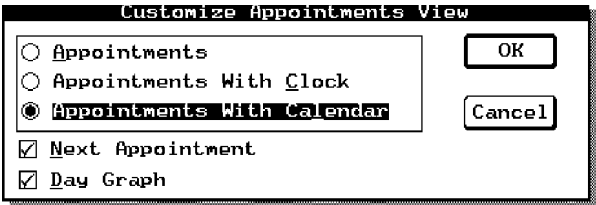calendar, or neither.*

*Check the relevant check boxes if you would like to see the Next Appointment
called out in a side box and/or see a vertical Day Graph that shades in the
times and durations of the current day's appointments. Next Appointment
can appear only in conjunction with the clock or calendar.*

Press F10 *when done (or* ESC *to cancel).*

To change the appointment timeline setting:

In the Appointment Book, press MENU O T *(Options Timeline).*

*Select the timeline option you prefer: displaying no times except those for
scheduled appointments (Appointments Only), or displaying regular times
at intervals of 15, 30, or 60 minutes.*

*Enter the first hour of the day for the timeline. This affects times you fill in
when adding an appointment: If you don't specify a.m. or p.m. when filling
in a time field, then the time is assumed to be after the first hour of the day.*

*Select whether the calendars and the weekly and monthly timelines should
start with Sunday or Monday.*

Press F10 *when done (or* ESC *to cancel).*

To change the time intervals in the daily/weekly timeline:

*Display the timeline, which appears in the daily and weekly appointment lists
(schedules).*

Press FN *ZOOM. ZOOM cycles through the time intervals: 60 minutes, 30
minutes, 15 minutes, and no intervals (just appointments).*

To change the default settings for appointments:

In the Appointment Book, press MENU O D *(Options Appointment-
Defaults).*

Set the following default values:

Appointment Duration. *This determines the default End Time for a new
appointment.*

Alarm. *Enabled or not (on or off), and Leadtime (how long before the
appointment the alarm goes off).*

Items to See in Week/Month View. *Whether appointments and events
should appear in the weekly and monthly appointment lists. They always
appear in the daily list.*

Press F10 *when done (or* ESC *to cancel).*

To change the default settings for to-do items:

In the Appointment Book, press MENU O E *(Options ToDo-Defaults).*

Set the following default values:

Carry Forward. *Uncompleted to-do items are carried forward to today if
Carry Forward is set.*

Priority. *The default priority for a to-do item. The priority can have one or two letters/numbers; numbers are sorted first.*
Press [F10] *when done (or* [ESC] *to cancel).*

To change the alarm volume and sound:
In the Appointment Book, press [MENU] [O] [B] *(Options Alarm-Beep).*
Checking Mute overrides the volume level. You might choose to mute all alarms when going into a meeting, for example.
Select (by tabbing and arrowing) the volume level and the sound.

The Custom choice requires the presence of a programming statement in a file named C:_DAT\ALARM.SND. Create this file as an ASCII file using the Memo Editor. This file can have up to 511 characters.

To test the volume and sound, press [F3]. *To cancel the test, press any key.*
Press [F10] *when done (or* [ESC] *to cancel).*

Commands for Custom Alarm Programming

Command	Parameters	Meaning

A..G	+ or # (sharp)
	    - (flat).
	    tempo
		Plays this note in current octave, length, and

K	0 (disabled)
	    1 (enabled)
	    Default is 0.
		Any keystroke terminates the alarm sound.

L	1 to 64 (8 is whole, 16 is half, etc.)	Sets length of following notes. Default is 8.
M	N (normal) L (legato) S (staccato)|	Playing style. Default is N.
O	0 to 7	Sets current octave. Default is 4.
P	1 to 64	Sets one pause of length *n*. 64 is shortest.
T	0 to 255	Sets tempo. Higher is faster. Default is 150.
V	0 to 3	Sets volume. Higher is louder.
period		Extends a note's duration by half.
space or comma		Affects readability only.

Parameters follow the commands. For example, the beginning of Mary Had a Little Lamb can be written as:

```
T230 K1 EDCDEEE. DDDP10 EGG.
```

To turn off the daily greeting:

The first time your palmtop is turned on each day it shows you your appointments, events, and to-dos for the day. This is called the daily greeting.

In the Appointment Book, press MENU O *(Options) to display the Options commands.*

Press G *(Daily-Greeting) to uncheck and turn off the daily greeting feature.*

Repeat the above steps to turn the daily greeting back on.

Appointment Book function keys

What the function keys do depends on whether the current context is appointments or to-dos.

Function Keys for an Appointment or To-Do List

Key Label Description

Key	Description
Add	Opens a template to define a new appointment or to-do item.
Note	Shows you the contents of the Note field for the highlighted item.
Find	Searches for the specified text (a character string).
Goto	Changes the current (displayed) date to the one specified.
6 Month	Displays the six-month calendar.
Month	Displays the current month's appointments and events.
eek	Displays the current week's appointments and events.
Appt	Displays the current day's appointments and events.
ToDo	Displays the current day's to-do list.
Add	Opens a template to define a new appointment or to-do item.
Note	Provides a full-screen note field.

Function Keys for an Appointment or To-Do List

Key Label Description

Key	Description
Find	Searches for the specified text (a character string).
Clip	To copy predefined fields (a Smart Clip) from the Appointment Book to the Clipboard. Also to define new Smart Clips. Smart Clip definitions are also used in Custom Style printing. See Chapter 1.

`Calendr`   Displays a small calendar for reference and date entry.

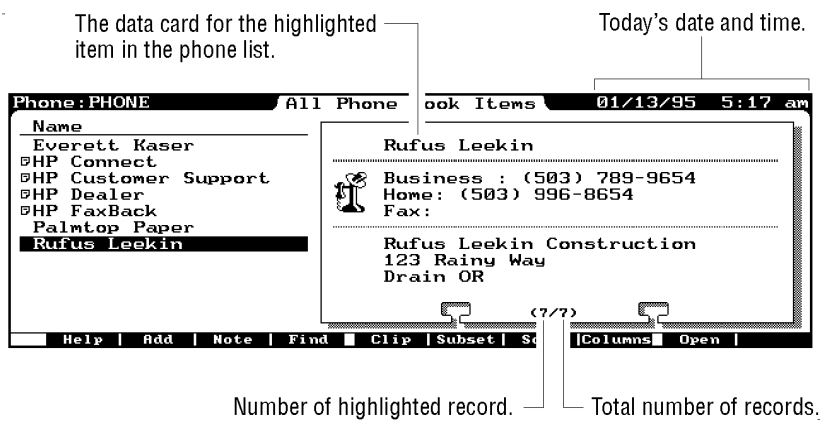`Repeat`   Defines a repeat interval for an appointment or to-do item.

4
The Phone Book and the

Database

The Phone Book and Database are two separate, but related applications. The Phone Book is a database that has been predefined to hold names, phone numbers, and so on. The Database application enables you to build your own databases. Most of the topics and procedures in this chapter apply to both applications.

About the Phone Book application

Press ⌨ to start the Phone Book. At first the Phone Book will be empty, but when you add items it will look like this:

The data card for the highlighted item in the phone list.

Today's date and time.

```
Phone:PHONE          /All Phone  ook Items \   01/13/95  5:17 am
  Name                             Rufus Leekin
 Everett Kaser
▢HP Connect                 ┌─┐  Business : (503) 789-9654
▢HP Customer Support        │☎│  Home: (503) 996-8654
▢HP Dealer                  └─┘  Fax:
▢HP FaxBack
 Palmtop Paper                   Rufus Leekin Construction
 Rufus Leekin                    123 Rainy Way
                                 Drain OR
                              ▭      (7/7)      ▭
     Help | Add  | Note  | Find ▪ Clip |Subset| S  |Columns| Open |
```

Number of highlighted record. ─┘ └─ Total number of records.

A Typical Phone Book List

Each individual or business has its own **record** of information. You view a record of information by highlighting the one you want and pressing ENTER.

```
Phone:PHONE                Phone Item            01/13/95  5:17 am
Name     [Rufus Leekin]
Business (503) 789-9654            Home (503) 996-8654
Alternate                          Fax
Title    Owner                 Category                        ↕
Company  Rufus Leekin Construction
Address1 123 Rainy Way
Address2
City     Drain            State OR          Zip
Note
    Help  | Add | Note | Find | Clip | Prev | Next |    Cancel | Done
```

A Phone Book Record

From a phone record, you can return to the phone list by pressing [F10] (to save any changes) or [F9] (to cancel any changes).

Adding to and editing a phone book

To add a record to the Phone Book:
Press [☎] [F2] *to start the Phone Book and display an empty record.*

```
Phone:PHONE                Phone Item            01/13/95  5:18 am
Name
Business                          Home
Alternate                          Fax
Title                         Category                        ↕
Company
Address1
Address2
City                     State           Zip
Note
    Help  | Add | Note | Find | Clip | Prev | Next |    Cancel | Done
```

Type in the name. Enter names either last-name first or first-name first, but be consistent because of alphabetic sorting.
Type information into the rest of the fields, pressing [TAB]*,* [⇧] [TAB]*, or* [ALT] *+underlined letter to move from field to field.*

Some fields can hold more than the window shows. Press [H] or [I] to view long fields.

The Note field provides an extra-large field. Press **Note**

to display a full-screen note. Any item with a note displays a +
to its left in the Phone list.

The Category field includes any categories entered for other
records. See *Using the category field* later in this chapter.

Press F10 *when done or press* F2 *to open a new record. Or press* ESC *to
cancel the information.* ☞

To edit (change) a phone record:

Display the phone list. Press ESC *or* F10 *, if necessary.*
Highlight the item you want to edit (either use the arrow keys or just start
typing the name and watch the display scroll as you type).
Press ENTER *to display the record.*
Tab to and edit the fields you want to change. To clear a field, press DEL *.*
Press F10 *to save your changes. Or press* ESC *to cancel them.*

To delete a phone record:

Display the phone list. Press ESC or F10 , if necessary.
Highlight the item you want to delete (either use the arrow keys or just start
typing the name and watch the display scroll as you type).
   If you want to delete several items, select each one by
       highlighting it and pressing SPACEBAR .
3. Press DEL .

To restore the last deleted item (Undo):

Press MENU E U .

To add or delete a field:

Since the Phone Book is simply a defined database structure,
you can alter its structure by starting the Database application
and opening the Phone Book file there. Use MENU File
Modify-Database to edit the Phone Book structure (see
Modifying a database definition later in this chapter). However,
you should not change the Phone Book structure if you plan to
use the Import function in the Connectivity Pack.

To remove the data card from the phone list:

You can control whether the data card is displayed in the phone

list.

To restore the data card to the phone list, press MENU V D (View Show-DataCard) to recheck the option.

To customize the information on the data card:

The data card is simply a Smart Clip of the information on a data record. You can edit the existing definition of the data card Smart Clip using F5 (Clip) from the phone list. Note in the data card definition that - and = are formatting commands that render thin and thick lines. For more information on editing Smart Clips, see chapter 1.

Searching a phone book

You can scan the Phone Book by scrolling through the Phone list (▲, ▼) or by looking through sequential records (**Next** , **Prev**).

To look up a name (speed-locate):

Display the phone list. Press ESC or F10 , if necessary.
Start typing the name; the list scrolls as you type.
Press ENTER *when the name is highlighted.*

To find any piece of text:

From a phone list or record, press F4 *(Find).*
Fill in the dialog box with the characters or text to search for.
Optionally tab to and select (press SPACEBAR *) the boxes for including notes in the search and for discriminating upper and lower case.*
Press F10 *to search from the beginning of the list.*
  Or press F4 (Next) to search through the list from the current (highlighted) position.
  Or press F3 (Previous) to start the search *backwards* through the list from the current position.

To repeat the last search, press [⇧] [F4].

A successful search stops at the first instance of matching text. Either the matching text (if a phone record is displayed) or the item containing the matching text (if the phone list is displayed) is highlighted.

Using multiple phone books

You can create more than one Phone Book file, thereby creating more than one phone list in this application. Use [MENU] File New or [MENU] File Copy to create a new Phone Book file. Use [MENU] File Merge to merge another Phone Book file into the current one.

Translating phone books

HP 100LX files need no translation to be used in your HP 200LX; they share the same file format. However, an Phone Book, Database, or Note Taker file displayed in your HP 200LX will look slightly different than a corresponding HP 200LX file. You can make data from your HP 100LX be displayed just like HP 200LX data by merging the HP 100LX file with an HP 200LX file—use [MENU] File Merge.

To translate an HP 95LX Phone Book to an HP 200LX Phone Book:

Copy an HP 95LX Phone Book file to the HP 200LX via the infrared serial port, a serial cable, or a plug-in memory card (see chapter 22).

In the HP 200LX Phone Book, open ([MENU] File Open) the copied file, filename.PBK.

When prompted, specify a new file name (other than PHONE) without any extension.

File Open then translates the .PBK file to an HP 200LX Phone Book file, automatically supplying the extension .PDB. This operation could take several minutes for a very large Phone Book.

Since the two types of phone records do not have exactly the same fields, this is how the information will be distributed:

HP 95LX Field   becomes HP 200LX Field

Name (30 characters)   Name (29 characters)

Phone   Business Phone

Address   Note

If you want, you can then use the Clipboard functions ($\boxed{\text{FN}}$ CUT and $\boxed{\text{FN}}$ PASTE) to move the information from one HP 200LX field (like Note) to another (like Address1).

Creating your own database

Press $\boxed{\text{\&...}}$ $\boxed{\text{B}}$ to start the Database application. A **database** has two distinct parts:

A **structure** (or **template**) that defines the **fields** the database has. The fields will hold data and are labeled by **field names**.

The data **records**. Each record contains its data values in the defined fields. The database **list** lists all the records in a database.

The Database application comes with one prepared database file for information about restaurants. You can use this built-in database structure (file name RESTR.GDB) to see what the Database application is like and practice using it. The Phone Book application ($\boxed{☎}$) is another example of a built-in database structure. In fact, you open, add to, delete, edit, search, etc., a database and its records in the same way you do a phone book.

```
Databa e:RESTR      All Databa e Items       01/13/95  5:18 am
   Restaurant



      ⊟



                                 (0/0)
    Help  |  Add  |  Note  |  Find  |  Clip  | Subset |  Sort  |Columns|  Open  |
```
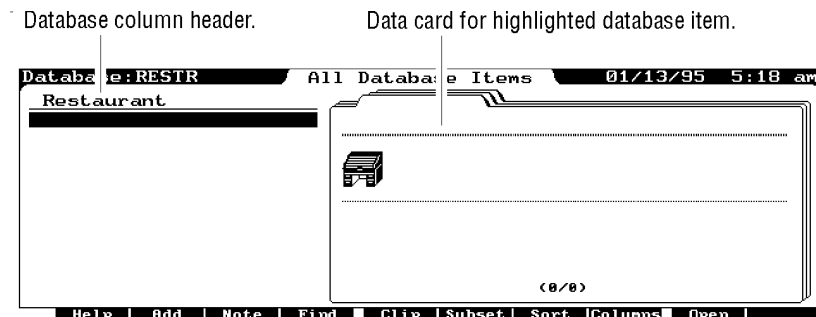
A Database List with No Data Records

In addition, you can define a database to contain the data fields you want, with any size and placement of fields.

About database structures

You can create a new database by:

Defining a new database structure, then filling out records for it.

Copying an existing database structure, then filling out new records for it. You can also modify this structure before filling out the data records.

File Commands for Defining Databases

[MENU] **File Commands   Description**

Define-New-Database To define a new database structure.

File New   To copy the current database structure but not its data. Use for a new set of data.

Modify-Database   To modify the current database structure.

A **database** is made up of a structure and many records of data (like phone records). The **structure** defines the **data fields** by **field name**, **field type**, and visual arrangement.

A field name.　　A text field.　　　　　　　　　　　　The Category field.

```
┌─────────────────────────────────────────────────────────────────────┐
│Database:RESTR.GDB              Data Item            01/21/94 10:55 AM│
│Restaurant  ■                                                         │
│┌Phone┐┌──────────────┐   Category ┌──────────────────────────────┐◆ │
││      ││              │            │                              │  │
│┌Address──────────────────────────────────────────────────────────┐ │
││                                                                  │ │
│┌Meals────────────┐ ┌Food Quality────┐ ┌Cost───────────────┐       │
││ ☐ Breakfast ☐ Lunch  ○ Excellent      ○ Expensive         │       │
││ ☐ Dinner    ☐ Brunch ○ Good           ○ Moderate          │       │
││ ☐ All Night          ○ Fair           ○ Inexpensive       │       │
│                                                                     │
│    ☐ Serves Liquor       ☐ Good for Kids    ☐ Vegetarian Menu       │
│┌Note┐ ┌─────────────────────────────────────────────────────────┐  │
││     │ │                                                         │  │
│  Help │ Add │ Note │ Find ■ Clip │ Prev │ Next │    ■Cancel│ Done │
└─────────────────────────────────────────────────────────────────────┘
```

Check boxes.　　The Note field.　　　　　A group box.　Option buttons.

A Database Structure
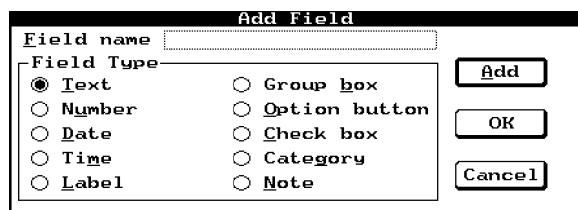
Field Types for Database Structures

Field Type　　　Description

Text　　　Provides a box for text. The box will hold times more
characters than its length shows (at least 10). For more
space, add more than one text field.

Number　　For numeric data.

Date or Time　　For date or time data using any punctuation
as delimiters. Dates and times must match
the format used for the system date and time
(set in the Setup utility). For time, the
number must represent hours and minutes.
For example, the input 1.30 means 1 hour 30
minutes, not 1.3 hours.

Label　　For descriptive text without a box. Provides a label
for each record. It has no data.

Group box　For visual grouping of the fields inside it. Option
buttons *must* appear inside a group box. If
the group box is too small, you can increase
its size.

Option button   To indicate one choice from a set of choices. *The option set must appear in a group box.* Option buttons in the same group box are mutually exclusive.

Check box To indicate yes/no (on/off) choices. Check boxes can be grouped together into a group box for appearance, but each one must be checked or unchecked independently of the others.

Category   For categorizing records. You can create a data subset based on a category of records. Limit: one Category field per database. The Category field is a special drop-down list box that is editable. The same category choices (up to 32) are available from all records of the same database. You cannot add category choices while defining the database.

Note   For adding notes in a large field with text-editing features. Limit: one Note field per database structure.

Defining a new database structure

To add and define the new fields:

In the Database application, press ⌷MENU⌷ ⌷F⌷ ⌷D⌷ *(File Define-New-Database). You see the Add Field dialog box:*

```
┌──────────────────Add Field──────────────────┐
│ Field name [                              ]   │
│ ┌Field Type──────────────────┐  ┌───────┐    │
│ │ ◉ Text        ○ Group box   │  │  Add  │    │
│ │ ○ Number      ○ Option button│  └───────┘    │
│ │ ○ Date        ○ Check box   │  ┌───────┐    │
│ │ ○ Time        ○ Category    │  │  OK   │    │
│ │ ○ Label       ○ Note        │  └───────┘    │
│ └─────────────────────────────┘  ┌───────┐    │
│                                   │Cancel │    │
│                                   └───────┘    │
└──────────────────────────────────────────────┘
```

Type in the name for a data field. A field name can have up to 20 characters. Names are not case-sensitive, and they ignore non-alphanumeric characters and leading digits. The & character has a special meaning explained later.

Tab to the **Field type** *group box and select the type of field.*

To add another field, press [F2]*. All fields will appear on one screen (*page*)*
initially, eventually overlying one another. You can move the fields apart at
any time.

You can have up to four pages per database structure. To access the next page
press [FN] [▼]*.*

When done adding fields, press [F10]*. If one field disappears under another*
one, just press [TAB] *until the hidden field is highlighted. Use arrow keys to*
move it.

To move or size a database field:

Keys   Description

[▲], [▼], [►], [◄]   Moves the current (highlighted) field
up, down, right, left. To move to a previous
or following page, use CUT and PASTE.

[⇧] arrow   Moves the current field by finer increments.

[CTRL]+[►], [CTRL]+[◄]   Adjusts the width of the current
field. You can also adjust the height of Group
boxes and Note fields.

[FN] CUT and [FN] PASTE   For moving the current field to
another page. (Use PG UP or PG DN before
pasting.) Option buttons or Check boxes
inside a Group box can move with the group
box.

To add a group box with option buttons (or check boxes):

Option buttons *must* exist inside a group box.

Add the group box first.

Add the option buttons (or check boxes). They automatically appear inside the
group box. You can move check boxes out.

To hold more than three buttons, enlarge the group box. Otherwise, additional
buttons overlie the bottom button.

Add any additional option buttons. Highlight any overlapping buttons—one at
a time—and move them apart.

To give a field a shortcut key:

You can always select a field in a database structure by tabbing

to it. You can also create a **shortcut key** (as part of the database definition) to select a field quickly in an open record. Include an ampersand when you define the field name. The letter it precedes will be underlined. For instance, specifying a field name as &Name makes the field name appear as Name. Its shortcut is `ALT`+`N`.

You cannot use the characters F, E, V, S, O, Q, H; they are already used by the system.

To use the shortcut, simultaneously press `ALT`+*underlined letter*.

You can use the same shortcut key on different pages of the database.

To edit or delete a field in the Define New Database screen:

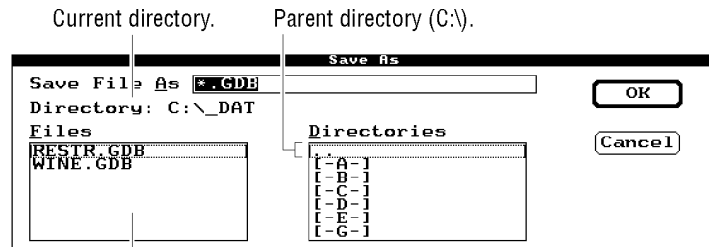| Key Label	Description
`Edit`	To change the name or the type of the current field. *You can change the type only if you have not yet saved this field in the database structure* (by saving it with a file name).
`Delete`	To delete the current field. Also deletes any data associated with this field.

Caution

If you delete a field from a database structure, this will also delete any Smart Clip definition or Subset definition that contained this field.

To save and name the new database:

Press `F10` to save the database structure. Or press `ESC` `F5` (No) to cancel the new database structure.

Name the new database. The default file extension is .GDB (for General Data Base). You do not need to type in the extension.

Current directory.   Parent directory (C:\).

```
┌──────────────────────────────────────────────────────────┐
│                        Save As                            │
│ Save File As  *.GDB  ┌──────────────────────┐  ┌────────┐ │
│ Directory: C:\_DAT                              │   OK   │ │
│ Files                Directories               └────────┘ │
│ ┌───────────────┐   ┌──────────────────────┐              │
│ │RESTR.GDB      │   │ [-A-]                │  ┌──────────┐│
│ │WINE.GDB       │   │ [-B-]                │  │ Cancel   ││
│ │               │   │ [-C-]                │  └──────────┘│
│ │               │   │ [-D-]                │              │
│ │               │   │ [-E-]                │              │
│ │               │   │ [-G-]                │              │
│ └───────────────┘   └──────────────────────┘              │
└──────────────────────────────────────────────────────────┘
```

All of the files in the current directory ending in .GDB.

Press [F10] when done.
This displays the list for the newly defined database. Since there are no records yet, the list is empty except for some column headers. You can now enter data into this database using [F2] (Add).

Example: Defining a Database for a Wine Collection. Define a database structure like this and name it WINE.GDB.

```
┌──────────────────────────────────────────────────────────────┐
│ Database:WINE.GDB         Modify Database(1/4)   01/19/94 10:19 AM│
│  Wine Collection                                               │
│  Variety  ┌─────────────┐     Vintage  ┌─────┐                │
│  Winery   ┌─────────────┐     Cost     ┌─────┐                │
│  Qty      ┌────┐                ┌Type──────────┐              │
│  Notes    ┌─────────────┐       │ ◉ Red        │              │
│           │             │       │ ◉ White      │              │
│           │             │       │ ◉ Blush      │              │
│           │             │       │ ◉ Sparkling  │              │
│           └─────────────┘       └──────────────┘              │
│                                                                │
│   ▐ Help ▌ ▐ Add ▌ ▐ Size ▌ ▐ Edit ▌ ▐   ▌ ▐ Delete ▌ ▐   ▌ ▐ Cancel ▌ ▐ Done ▌│
└──────────────────────────────────────────────────────────────┘
```

Keys	Description
[&...] [B]	Opens the Database application.
[MENU] [F] [D]	Starts the Define New Database procedure with an Add Field dialog box.
Wine Collection [ALT]+[L] [ENTER]	Adds the label "Wine Collection". Pressing [ENTER] is the same as pressing [F2].
Variety [ALT]+[T] [ENTER]	Adds a text field for the Variety.
Winery [ENTER] [ENTER] [▶]	Adds a Winery text field and moves it over to align with the previous field. [ENTER] [ENTER] are the same as

F10 .

Keys	Action
F2 Vintage ALT + U F10	Adds a Vintage number field.
►... ▲ ▲	Moves Vintage field to right of Variety field.
F2 Cost F10	Adds a Cost number field.
►... ▲	Moves Cost field to right of Winery.
F2 Qty F10 ►	Adds and aligns a Qty number field.
F2 Notes ALT + N F10 CTRL + ◄... ► ► CTRL + ▼...	Adds, narrows, moves, and deepens a Notes note field.
F2 Type ALT + B ENTER	Adds a Type group box.
Red ALT + O ENTER	Adds a Red option button.
White ENTER Blush ENTER Sparkling F10	Adds other option buttons and displays the database structure. The last two buttons overlie each other, making them illegible.
▼	Moves last option button down.
⇧ TAB	Backtabs to highlight the Type group box.
CTRL + ▼...	Enlarges Type box to hold all buttons.
F10	Saves new structure definition.
wine F10	Names this database file WINE.GDB in the current directory. Displays the new, empty database list, ready for data entry.

```
Database:WINE              All Database Items        03/09/94 12:06 pm
   Variety
 ┌────────────────────┐  ┌───────────────────────────────────────────┐
 │████████████████████│  │.........................................  │
 │                    │  │                                           │
 │                    │  │   🖶                                       │
 │                    │  │                                           │
 │                    │  │                                           │
 │                    │  │                                           │
 │                    │  │                                           │
 │                    │  │                        (0/0)              │
 └────────────────────┘  └───────────────────────────────────────────┘
    Help │  Add  │  Note │  Find │ Clip │Subset│ Sort │Columns│ Open
```
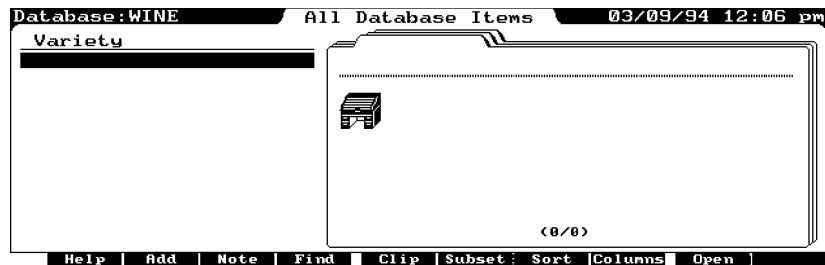
Once you have entered wines into the list, the data card will display specifics on the current (highlighted) wine.

Modifying a database definition

Follow these instructions to edit the definition of a database structure that has already been saved and named. The data set (if any) is not affected by a change to the name or position of a field.

To edit the database structure:

Display the database list of the file you want to edit. If the file is not currently displayed, use F9 (Open) to display it. Type in or select the database file name and press F10.

Do *not* open a record or display a database structure.

Press MENU F F (File Modify-Database).

Use the same techniques you used while defining the new database structure. When done, press F10 to save the modified structure, or press ESC to cancel the modifications.

Key Label	Description
Add	Adds a new field.
Size	Size mode. Pressing arrow keys now changes the size of the current field. Shortcut: CTRL +arrow key. Press **Move** to cancel Size mode.
Edit	To rename the current field *before it's saved*.
Delete	Deletes the current field.
arrow keys and ⇧ arrow keys	Moves the current field, unless Size mode is on.

Note

In order to protect any existing data, you cannot edit the field type once it has been saved in a database structure.

To restore the original database structure:

Select MENU Edit Undo before doing another operation. You can also undo an undo operation.

To duplicate a database structure:

This duplicates a database definition without its data. Do this if you want an identical or similar database definition for a new

set of data.

If the database you want to copy is not currently displayed, use F9 *(Open) to display it.*

Press MENU F N *(File New).*

Name the new database file and press F10 *.*

The new database is now ready for you to modify or enter data.

Modifying the data card

The data card that shows up in your database list screen contains information from the record of the highlighted entry. When you create your database, the first 10 fields you add are by default put into the data card definition. Information from these fields will appear in the data card. You can change the data card definition, and you can altogether remove the data card from the list screen.

To customize the information on the data card:

The data card is simply a Smart Clip of the information on a data record. You can edit the existing definition of the data card Smart Clip using F5 (Clip) from the database list screen. Note in the data card definition that - and = are formatting commands that render thin and thick lines. For more information on editing Smart Clips, see chapter 1.

To remove the data card from the database list screen:

Display the database list. Press ESC or F10 , if necessary.

Press MENU V *(View) to see the View commands.*

The default state of the Show-DataCard option is on (checked). Press D *to uncheck the box and remove the card from the list.*

To restore the data card to the database list, press MENU V D (View Show-DataCard) to recheck the option.

Searching a database

You search a database you create just like you search a Phone Book database: scroll through the database list ($\blacktriangle$, $\blacktriangledown$) or look through sequential data records (**Next** , **Prev**). For specific searches, use **speed-locate** or **Find** , as explained earlier in this chapter.

Sorting data lists

By default, your database (including Phone Book) records are sorted in the list in order by the top left field of the record (which is the leftmost column). You can change:
Which field to use for sorting. The choice of field determines whether the sorting method is alphabetical (Text field), numerical (Number field), or chronological (Date and Time fields).
Whether to sort in ascending (the usual) or descending order.
Whether to have second and third sorting fields to break sorting ties (such as for two phone records named Dave Johnson).
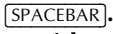
To change the sorting method:

This affects just the current list (or the current subset of a list).
Display the list.
Press [F7] *(Sort).*
Select the first sorting field. Use [$\blacktriangledown$] *to highlight your choice. Use* [ALT] + [$\blacktriangledown$] *to view the whole list.*
To change the order (ascending/descending), tab to the check box and press [SPACEBAR].
If you wish, tab to and specify second and third sorting fields.
Press [F10] *when done. Or press* [ESC] *to cancel the information.*

Example: Types of Sorting in the Phone Book. If the sorting field is a Name field, sorting occurs alphabetically. Ascending means from A to Z, so Aardvark appears before Zebu in the list. If the sorting field is a number field, sorting occurs numerically. Ascending means from lower to higher, so 2000

appears before 2026. Only numbers in number fields can be sorted numerically. If the sorting field is a date or time field, sorting occurs chronologically. Ascending means from earlier to later, so 6/1/1993 appears before 6/1/1994.

Rearranging the columns in data lists

You can customize the appearance of a database (including Phone Book) list by altering how many columns are displayed, how wide they are, and which data fields the columns represent. For instance, you could change the appearance of a phone list from this:

```
                        Arrange Columns
 Name                  | Business          | Home
  Blascow, Stan         (812) 555-0987      (812) 555-6543
  Evett, Eric           700-1111            701-0000
  Gilbert, Jean         800-1234            800-4321
  Grouch, Oscar         (800) 123-4567      (800) 123-1234
  Gryc, Andy            (416) 700-7634      (416) 555-7634
 [Harding, John W.]     700-0811            710-0000
  Johnson, Bill         700-2127            700-1272
  Kaser, Everett        (206) 555-5676      (206) 555-0123
  Megowan, Pat          (212) 555-8761      (212) 555-8866
  Roy, Diana            555-0987            (311) 555-6543
  Wechsler, Susan       800-5457            800-0000

   Help  |  Add  | Delete |  Edit  | Width- | Width+ | ←Move | Move→ | Cancel | Done
```

to this:

```
                        Arrange Columns
 Name                  | Company           | Business
  Blascow, Stan         Hyper-Pack          (812) 555-0987
  Evett, Eric           PIM Pro             700-1111
  Gilbert, Jean         Alarm Control       800-1234
  Grouch, Oscar         CTW                 (800) 123-4567
  Gryc, Andy            Global Software     (416) 700-7634
 [Harding, John W.]     Musix               700-0811
  Johnson, Bill         Data Wizard         700-2127
  Kaser, Everett        Features, Inc.      (206) 555-5676
  Megowan, Pat          KitchenSink Co.     (212) 555-8761
  Roy, Diana            Writesimple         555-0987
  Wechsler, Susan       Planning Managemen  800-5457

   Help  |  Add  | Delete |  Edit  | Width- | Width+ | ←Move | Move→ | Cancel | Done
```

To rearrange the columns in a list:

This affects just the current list (or the current subset of a list).
Display the list.
Press F8 *(Columns).*
Highlight (arrow to) the column you want to alter or move.

Use the function keys described below.
Press F10 *to save the rearrangement. Or press* ESC *to cancel it.*

Function Keys for Rearranging Columns (`Colu ns`)

Key Label	Description
`Add`	Adds a specified column to the right of the current column.
`Delete`	Deletes the highlighted column. Leaves a blank column on the right side.
`Edit-`	Changes the highlighted column to the one you specify (by field name).
`idth-`	Narrows the highlighted column.
`idth+`	Widens the highlighted column.
`←Move`	Swaps positions with the column on the left.
`Move→`	Swaps positions with the column on the right.

Note

Rearranging the columns affects the appearance of the list only. It does not affect the actual data in the records.

Defining subsets of a database

The `Subset` function displays a specified subset of your Database. You define the subset by filling out a database template according to the field contents you want to select for. For example, you could define a subset of the wine database that selects and displays only the white wines.

Note

Defining subsets does not affect the original, complete list of records. The `Subset` *function does not create new or separate databases. It defines and displays a subset of the current database. Subsets have names, but they are not separate files.*

Displaying existing subsets

To display an existing subset:
While displaying a database list, press `F6` *(Subset).*
Highlight the desired subset name and press `F10`*.*

To display the complete database list again:
While displaying the database list, press `F6` *(Subset).*

Highlight "All (Database, Phone Book, etc.) Items" in the list of subset choices and press `F10`.

Defining a new subset

To define a subset:

You can define up to 16 subsets.
While displaying the database list, press `F6` *(Subset).*
Press `F2` *(Define). The Define Subset screen displays a copy of the current database structure.*
Fill in one or more fields with the contents you want to select for.
Press `F10`*.*
Type a name for the new subset and press `F10`*. This displays the subset list with the new name highlighted. If you do not type in a name, then the new subset is named "Unnamed Subset". However, the next unnamed subset will overwrite (replace) the previous one.*
Press `F10`*. This displays the new subset (whose name appears in the title bar).*

Using Check Boxes and Option Buttons in a Subset Definition

By default, check boxes in the Define Subset screen are dimmed. This means they are **neutral**; that is, either status (checked or not) in a record will qualify for the subset. Use `SPACEBAR` to cycle through selected, not selected, or neutral (shaded).

By default, option buttons are not on. This means they are

neutral; that is, either status (on or off) in a record will qualify for the subset. To specify that an option button *must be off* to qualify for the subset, you must use an SSL statement. See *Advanced subset selection* later in this chapter.

If a check box is checked or an option button is on, then a record that matches this status will qualify for the subset.

To set an option button in a subset definition:

Tab and/or arrow to the option button you want and press the [SPACEBAR] This is different from the usual way of setting an option button by arrowing.

You cannot turn on more than one option button.

Example: Defining a Database Subset. Define a subset of the restaurant database (RESTR.GDB) that displays only restaurants that are open all night. Save this subset under the name "All-Night Places." To define this subset, check the All Night check box in the Meals group box.

Keys	Description
[&...] [B]	Opens the Database. If RESTR.GDB is not displayed, do the next step:
[F9] restr [F10]	Displays the built in restaurant database (though the list is empty if you haven't added data records).
[F6] [F2]	Opens the Define Subset screen, which is identical to the database structure.
[ALT]+[T]	Highlights the All Night check box and turns it on. The other check boxes remain dimmed (neutral).

```
                         Define Subset
Restaurant ┌──────────────────────────────────────────────────────────┐
Phone      ┌───────────────────────┐  Category ┌─────────────────────┐⬍
Address    ┌──────────────────────────────────────────────────────────┐
┌Meals──────────────────┐┌Food Quality─────┐┌Cost────────────────────┐
│ ▦ Breakfast ▦ Lunch   ││ ○ Excellent     ││ ○ Expensive            │
│ ▦ Dinner    ▦ Brunch  ││ ○ Good          ││ ○ Moderate             │
│ ☑ All Night           ││ ○ Fair          ││ ○ Inexpensive          │
│  ▦ Serves Liquor         ▦ Good for Kids      ▦ Vegetarian Menu
Note ┌─────────────────────────────────────────────────────────────┐

     ███Help██│General│███████│███████│██████│██████│████│Cancel│██OK██
```

[F10] All-Night Places [F10]	Names this subset "All-Night Places."
[F10]	Displays this subset.
[F6] [▲] [F10]	Selects and displays the complete database list again ("All Database Items").

Using the category field

Information in the Category field of a record is often used to define a subset. For example, the Phone Book has two built-in (predefined) categories in the Category field: "Business" and "Personal". You could specify one of these categories in each record to distinguish between business and personal Phone Book records.

The Category field is a list box that is editable and allows *multiple selections*. For instance, you can compose the multiple category "Business;SW Club;Local". The list box maintains a list of all possible categories used in other records; you select from the list (or add to it) the category choices you want for each individual record, if any.

To use a Category list box:

To open a category list box, tab to it (or press [ALT]+[G] and press [▼].

To make a selection from the choices given, highlight the choice and press [SPACEBAR]. The choice will be added to the

text box. A semicolon separates multiple selections in the text box.

To remove a selection, highlight the choice and press [SPACEBAR] again.

To close a category list box, press [ALT]+[P] or [ESC].

```
                        Define Subset
Name
Business                                Home
Alternate                               Fax
Title                               Category  Personal        ⬍
Company                                        Business
Address1                                       Personal
Address2
City                        State          Zip
Note

    Help  General                                   Cancel   OK
```

An Open Category Box

Note

Each database structure can have one Category field. Each Category field can have up to 32 category choices or 255 characters (no more than 128 characters per choice).

To edit a category list box:

To add a category choice to the list, close the list box and type the new entry.

To delete a category choice from the list, highlight it and press [DEL].

To de-select a category choice, highlight it in the list and press [SPACEBAR].

Example: Using the Category Field to Define Subsets. Create a personal phone list and a business phone list by defining two subsets based on the Category field in each Phone Book record. For a record to appear in one of these lists, it must contain "Personal" or "Business" in its Category field. If a record belongs in *both* categories, then select (press [SPACEBAR]) both

categories.

The subset definition (**Subset** **Define**) for the personal phone list would look like this:

```
┌──────────────────── Define Subset ────────────────────┐
│ Na̲me ┌─────────────────────────────────────────────┐  │
│      └─────────────────────────────────────────────┘  │
│ Phone: B̲usiness ┌─────────────┐    Ho̲me ┌───────────┐ │
│                 └─────────────┘         └───────────┘ │
│        A̲lternate ┌────────────┐    Fa̲x  ┌───────────┐ │
│                  └────────────┘         └───────────┘ │
│ T̲itle ┌──────────────────────┐ Cat̲egory │Personal  ↕│ │
│       └──────────────────────┘          ┌───────────┐ │
│ Compa̲ny ┌───────────────────┐           │ Business  │ │
│         └───────────────────┘           │◆Personal  │ │
│ Address̲1 ┌──────────────────┐           └───────────┘ │
│          └──────────────────┘                         │
│ Address̲2 ┌──────────────────┐                         │
│          └──────────────────┘                         │
│ C̲ity ┌──────────────┐ State̲ ┌─────┐   Z̲ip ┌────────┐ │
│      └──────────────┘       └─────┘       └────────┘ │
│ N̲ote ┌─────────────────────────────────────────────┐  │
│      └─────────────────────────────────────────────┘  │
│   Help │General│       │    │    │    │    │ Cancel│ OK│
└────────────────────────────────────────────────────────┘
```

Define Subset Screen for a Personal Phone List

Name this subset "Personal" and a corresponding one "Business".

When you want to display one of these subsets, press **Subset** , highlight the subset name, and press F10 . To display the original list again, select the subset named All Phone Book Items.

Using multiple criteria in a subset definition

To define a subset with multiple criteria:

You can make a subset definition more sophisticated by filling out more than one field and/or by including more than one possible entry in a field. In the Define Subset screen,

If you want more than one field searched to compile the subset, then fill in as many fields as you want. The subset will include only records for which all the specified fields qualify.

If you want to specify more than one possible match for a field, then separate

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those possible matches with a comma. (A logical OR.)
If you want a subset to exclude a certain field entry, then precede that entry by a hyphen. (A logical NOT.)
If you want to specify a range of numbers, precede a number by <, >, =, <=, >=, or <> (not equal to).
If you want to specify a criterion that could appear in any field, precede it with ✶. For example, entering ✶English in the Restaurant field will select for "English" in any field in the record.

Field Selection Criteria \ Define Subset Screen

Definition in Field

Values That Qualify

empty	Any value in this field.
value	If this field contains the given value.
✶ *value*	If *any* field contains the given value.
value, value	If this field contains *either* of the given values.
value &*value*	If this field contains *both* of the given values.
– *value*	If this field does *not* contain the given value.
= *value*	If this field *exactly* matches the given value, with no extra characters. For example, =red will *not* match red and green or red;green.
< *value*	

<= *value*	
> *value*	
>= *value*	
<> *value*	If this field has one of these unequal relations with the given value.

Example: Defining a Subset with Multiple Criteria. The subset definition below will display a subset of the restaurant database. The subset will comprise restaurants in Paris that serve Algerian or Moroccan food of excellent quality.

```
┌──────────────────────────────────────────────────────┐
│                   Define Subset                      │
│ Restaurant ┌──────────────────────────────────────┐  │
│            └──────────────────────────────────────┘  │
│ Phone ┌──────────────────┐  Category │Algerian,Moroccan│ ⬍ │
│       └──────────────────┘  └─────────────────────────┘  │
│ Address │Paris                                         │ │
│ ┌Meals──────────────┐┌─Food Quality─┐┌─Cost─────────┐  │
│ │ ▓ Breakfast ▓ Lunch││ ◉ Excellent  ││ ○ Expensive  │  │
│ │ ▓ Dinner    ▓ Brunch││ ○ Good       ││ ○ Moderate   │  │
│ │ ▓ All Night        ││ ○ Fair       ││ ○ Inexpensive│  │
│ └────────────────────┘└──────────────┘└──────────────┘  │
│   ▓ Serves Liquor      ▓ Good for Kids   ▓ Vegetarian Menu│
│ Note ┌──────────────────────────────────────────────┐  │
│      └──────────────────────────────────────────────┘  │
│  Help │General│        │      │      │      │  Cancel │ OK │
└──────────────────────────────────────────────────────┘
```

Subset Definition with Multiple Criteria

Editing or deleting subset definitions

To edit or rename a subset definition:

While displaying the database list, press F6 *(Subset).*
Highlight the desired subset.
Press F4 *(Edit) or* F3 *(Rename).*
Make the changes and press F10 *when done.*
Press F10 *again. This displays the edited subset.*

To delete a subset definition:

While displaying the database list, press F6 *(Subset).*
Highlight the subset you want to delete.
Press F7 F10 *(Delete OK).*

To restore a subset definition you have just deleted (or edited), escape the subset list, then select MENU Edit Undo. Use undo before doing another operation.

Advanced subset selection

The `General` function (F2 in the Define Subset screen) lets you use the Subset Specification Language (SSL) to create subset criteria as command statements that are are too complex for the Define Subset screen (such as comparing values in different fields).

```
            General Subset Entry
SSL Statement
{Business#"(213)"|Business#"(310)"}




                              OK      Cancel
```

An SSL Statement

To see the SSL statement for a subset specification:

Press F6 F2 (Subset Define) and fill out the template, or
press F6 F4 (Subset Edit) for an existing subset definition.
Press F2 (General) if available.

SSL syntax

SSL statements use relational operators and Boolean operators
to select records for the subset. Spaces around operators are
optional.

Relational operators

Relational operators test the relationship between two
arguments. The test usually compares a field (by its field name)
with some value, but it can also compare two fields. The test is
not case-sensitive. If the test result is true, then the record being
tested passes the filter.

Arguments for Relational Tests

Argument Description

fieldname The field name must match the field name given in
             the record's template. If the field name has
             any non-alphanumeric characters, the name
             must be enclosed in {}. You can test any field
             with a relational operator except those with
             check boxes and option buttons.

value   There are three types of values: strings (enclosed in
             „"), numbers, and others (enclosed in {}).
             Other-type values are times, dates, and

application-defined data types.

If a field and a value are compared, they must be of the same type (string, number, date, etc.).

Relational Operators

Operator	Meaning	Example
=	Does field match exactly another field or value?	City = „Boston‟ Home" = Business
<>	Does field *not* match exactly another field or value?	Score<>0
<, <=	Is field less than or equal to the value?	Date <{10/12/92} Income <= 25000
=>, >	Is field greater than or equal to the value?	{Start Time}>{12:00a} Latitude> = 0

->   Is the field a member of the given set of strings? The set is either the given values or a range of values. A range is two values separated by .. (includes boundary values). State -> „MI‟, „OH‟ Zip-> „97000".."97999"

\#   Does the field contain the given value?   Phone# „(503)‟ Note# „Cougar‟

!*field*#   Does the field *not* contain the given value? City# „Detroit‟

Testing Check Boxes and Option Buttons. Although check boxes and option buttons are not operators, their states (on/off) can be tested to yield a Boolean result (true/false). For example, Enabled tests whether the Enabled check box (for an alarm) is checked.

Boolean operators

Boolean operators act on relational operations to negate, extract, or combine results when filtering records to create a subset. If a test result is true, then the record being tested passes the filter. Boolean operators have lower precedence than relational operators.

Boolean Operators (in order of precedence)

Operator	Example	Selects Record If
!(NOT)	!Phone# „(503)‟	Phone field does *not* contain (503).
	!Enabled	The alarm is *not* enabled.
& (AND)	State= „VA‟ & City<> „Richmond‟	State is VA but City is *not* Richmond

| (OR) State=″HI″|State=″AK″ State is either HI or AK.

To apply an operation on a string to any field:

Use *″string″ to select records containing the specified string. For example, to select (for a subset) all phone records with the dialing prefix 750 in any field, enter the SSL statement „*750″.

Comparison of SSL and define subset screen

Define Subset screens are translated internally to SSL statements for interpretation of the subset criteria. The following table compares the two methods of subset definition: using the Define Subset screen and using the `General` function (SSL statement) to define some subset criteria in the Category field. (SSL statements may include parentheses to clarify order of operation.)

Examples Comparing Define Subset and SSL\in Definitions for the Category Field

Define Subset	SSL Statement	Selects Record If:
red,green	Category#"red" | Category#"green"	Category field contains „red"or „green" or both
-red	! Category#"red"	Category field does *not* contain red
-red,green	! Category#"red" | Category#"green"	Category field contains gree nor does *not* contain red.
red & green	Category#"red" & Category#"green"	Category field contains both red and green.
=red,green	Category=″red″ | Category#"green"	Category field matches exactly red or contains green.
*red, *green	*"red" | *"green"	Any field contains red or green or both.

SSL examples

This SSL statement defines a Phone Book subset for all Massachusetts phone numbers and all phone numbers without area codes:

Phone#"(508)"|Phone#"(617)"|!Phone#" ("

This SSL statement defines a Phone Book subset for all West Coast business clients:

State->"CA","OR","WA","BC" & Category#"Business" & Category#"Client"

This SSL statement defines a Phone Book subset for all suppliers in major western Oregon cities:

```
Category="supplier" & State#"OR"
& City->"Portland","Salem","Eugene","Medford"
```

Limits while using the Phone Book and Database

Maximum number of records (items) in a Phone Book file: limited by available disk space. Theoretical maximum: about 5,000.

Maximum number of data characters per text field: times the visible length, or at least 10.

Maximum number of data characters in a Note: 32 KB (about 30 screens).

Maximum number of choices in a Category field: 32 (or 255 total characters, with no more than 128 characters per choice).

Maximum number of fields per database structure: 99 (fewer if long fields).

Maximum number of pages in a database structure: 4.

Maximum number of subsets in a database: 16.

Phone Book and Database function keys

Function Keys for Define-New-Database and Modify-Database

Key Label Description

Add	Opens a dialog box to define a new database field.
Size	Turns Size mode on. Pressing ◄, ►, ▲, and ▼ now enlarges or diminishes the current field. Shortcut: CTRL +arrow key.
Move	Turns Size mode off. Pressing arrow keys now moves the current field.
Edit	Opens a dialog box to edit the current field.
Delete	Deletes the current field.

Function Keys for the Phone and Data Lists

Key Label Description

Add	Opens a template to add a new Database record.
Note	Displays the full-screen Note for the highlighted item, *if the current database has a Note field.*
Find	Searches for the specified character string (letters or other characters).
Clip	To copy predefined fields (a Smart Clip) from a database to the Clipboard. Also to define new Smart Clips and to edit the data card. See chapter 1. Smart Clip definitions are also used in Custom Style printing.
Subset	To display and/or define a specified subset of the data list.
Sort	Specifies how to sort the records for the list.
Colu ns	Specifies how many columns appear in a list, how wide they are, and which fields they display.
Open	To open a different Database file.

**Function Keys for a Phone and Data Record
(an Item)**

Key Label Description

Add	Opens a structure to define a new Database record.
Note	Displays the full-screen note, *if the database structure has a Note field.*
Find	Searches for the specified character string (letters or other characters).
Clip	To copy predefined fields (a Smart Clip) from a database to the Clipboard. Also to define new Smart Clips.
Prev	Displays the previous record.
Next	Displays the next record.

Function Keys for Defining Subsets and Smart Clips

Key Label Description

`Define` To define a new subset or Smart Clip.

`Rena e` To rename the highlighted subset or Smart Clip definition.

`Edit` To edit the highlighted subset or Smart Clip definition.

`Delete` To delete the highlighted subset or Smart Clip definition.

5
World Time

Press &... T to start World Time. World Time is a database of cities, including information about

Local time and Daylight Savings Time.

Location on a map, with latitude and longitude.

Telephone dialing prefixes.

You can also create your own list of cities, called Custom Cities.

City lists

You define this.   If this is **??:??** , define the local city.

```
WorldTime:WORLD          All Cities        01/18/94  6 26 pm
Local City
 Greenwich               United Kingdom                6:26 pm

All Cities
Aarhus                   Denmark                 ✓      7:26 pm
Abadan                   Iran                            9:56 pm
Abidjan                  Ivory Coast, R. of              6:26 pm
Abu Dhabi                United Arab Emirates           10:26 pm
Acapulco                 Mexico                  ✓     12:26 pm
Accra                    Ghana                           6:26 pm
Addis Ababa              Ethiopia                        9:26 pm
Adelaide                 Australia               ☀   +  4:56 am
Aden                     Yemen A.R.                      9:26 pm
    Help  | Add    | Note | Find | Clip |Subset |→Local |Convert| Custom | Map
```

Current city. —— ▲ and ▼ move the highlight bar. (ENTER) opens the record.

List of All Cities (All)

Symbol Meaning

☀   Daylight Savings Time is on.

+   Time is tomorrow.

–   Time is yesterday.

✓   City is also in Custom Cities list.

▱   Note is included.

☼

To open a city's record:

In a city list, highlight a city (use ▼ or ▲, or simply start typing the city's name) and press ENTER.

```
WorldTime:WORLD              City              01/18/94  6:48 pm
City Aarhus                         Country Denmark
Int'l Access 009      City Prefix 45 6        ☑ Custom List
  Category ROM                  ↕ ┌Time Offset From──────────────
┌Daylight S│vings──────────  Hours 1:00  ○ System ◉ Universal
│ ○ Yes          ○ No       ┌Location───────────────────────
│ ◉ Automat│c European    ↕ │ Latitude 6.00   Longitude 0.33
│
Note
      Help │ A│ │ Note │ Find │ Clip │ Prev │ Next │Locate│Cancel│ Done
```

A built-in city.   Press to see the previous or next city record.

A City Record

To look up a city (speed-locate):

Display a city list. Press [ESC] *or* [F10]*, if necessary.*
Start typing the name of the city. The list scrolls as you type, highlighting the first matching city.
Press [ENTER] *when done, or arrow to the city you want.*

The speed-locate operates as it does in the Database and the Phone Book.

Specifying your local city

Your local city is the reference point for the World Time application.

Example: Specifying the Local City. Select Chicago as your local city. Substitute a city in your time zone, if you like.

Keys:	Description:
[&...] [T]	Starts World Time. If the All Cities list isn't displayed, press **All** ([F9]) to see it.
chi	Highlights Chicago. The list scrolls as you type, highlighting the first matching city.
[F7] [F10]	Selects Chicago as the local city and updates the system time to the time in Chicago.

The first time you set your local city, its time is set from the palmtop's clock setting, called the **system time**. If you change the local city to a city in another time zone, you'll be asked if you want the system time automatically changed to reflect the difference in time zones. If you respond yes, remember that alarms and appointments will come due based on the time in the new local city.

Adding a city to World Time

Since the All Cities list does not include every location in the world, you can add other cities to the list.

To add a city:

In World Time, press F2 *(Add).*

```
WorldTime:WORLD            City           01/18/94  6:43 pm
 City ■                         Country
 Int'l Access              City Prefix            □ Custom List
 Category                  ⬍  ┌Time Offset From─────
┌Daylight Savings─────       Hours        ○ System ○ Universal
 ○ Yes        ○ No          ┌Location──────
 ◉ Automatic None    ⬍       Latitude        Longitude
 Note
   Help  Add   Note  Find   Clip   Prev  Next  Locate Cancel  Done
```

Fill in the fields. Use TAB *or* ALT *+letter to move among fields.*
   City *and* **Country.**
   International Prefix. *Optional. The international telephone access code for dialing out of this city.*
   City Prefix. *Optional. Telephone dialing prefixes to reach this country and city.*

Custom List. Check this box (press SPACEBAR) to include this city in the Custom Cities list, as well as the All Cities list.
   Category. *Optional. Includes a list of any categories used for other cities. You can enter a new category or press* ▼ *to see the full list and select an existing category. You can categorize the cities in any way you want, and use this information later to view a subset of cities. The category "ROM" means that that city belongs to the original All Cities list.*

Time Offset From. *Number of hours difference between this city's time and either the current palmtop time ("System") or Greenwich Mean Time ("Universal"). If the offset is positive, then the city's time is later than System or Universal time; if the offset is negative, then the time is earlier. The time offset is for standard time only, not daylight savings time.*

Daylight Savings. *Can be set to be always on (Yes), always off (No), or to automatically switch. The Automatic schedules available are for North America, Southern Hemisphere, and Europe.*

Location. *Optional. The easiest way to fill this in is to use the* `Locate` *function (F8). Use the arrow keys to pinpoint the city's location, then press F10 . The values shown are degrees and decimal fractions thereof, not degrees and minutes.*

Note. The Note field provides a large field for any additional information. Pressing `Note` displays a full-screen note.

Press F10 when done. Or press ESC to cancel the information.

Tips

If you are adding a series of records, press just F2 instead of F10 F2 between records. This saves the current record *and* opens a new template.

The fields can hold more than the window displays. Press ▶ or ◀ to view long fields.

If you don't know a new city's time offset, then look up a city of the same time zone in the All Cities list and note its time difference from Universal time.

The Category field is useful for categorization and viewing subsets. For example, you could indicate here the official language, and later display a list of Spanish-speaking locales.

Editing or deleting a city

To edit (change) a city:

Display a city list: if necessary, press F9 (Custom or All).
Highlight the city you want to edit.
Press ENTER to open the record.
Edit the fields. Use TAB or ALT +underlined letter to move among fields.

To clear a field, highlight it and press DEL .

To restore a field's previous contents, press ESC.

Press F10 *to save your changes. Or press* ESC *to cancel them.*

To delete a city:

Deleted cities are removed from both All Cities and Custom Cities lists.

Highlight a city and press DEL.

   If the city belongs to the original version of the All Cities list, the original version is restored. Original records in ROM cannot be deleted.

  If the city is one you added, it is completely deleted.

You can select multiple cities (use SPACEBAR and delete them all at once.

To restore the just-deleted cities, press MENU E U (Edit undo).

Creating your own city list (custom cities)

The Custom Cities list allows you to define your own list of cities. You can compile this list by checkmarking cities in the All Cities list or by checking the Custom List box in a city's record.

To put a city in the Custom Cities list:

Display the All Cities list (press `All` *, if necessary).*

Highlight the city you want to put in the Custom Cities list.

Press +. *This places a checkmark after the name, indicating that this city is now in the Custom Cities list, as well.*

`Albuquerque,NM USA ✔ 12:19 pm`

Press F9 (Custom) to display your Custom Cities List.

To remove a city from the Custom Cities list, highlight the city and press -.

Using the map

To see a city on the map:

In a city list, highlight the city.

Press F10 *(Map).*
To open the city's record, press ENTER*.*

The current list. —————— Location of Aarhus.

```
WorldTime:WORLD              All Cities         01/18/94  7:16 pm
```

Aarhus   Denmark   ✓   8:16 pm
```
   Help  |  Add  |  Note  |  Find  |  Clip  | Subset |→Local|Convert| Custom|  List
```
└— Pressing ▼ or ▲ changes cities.
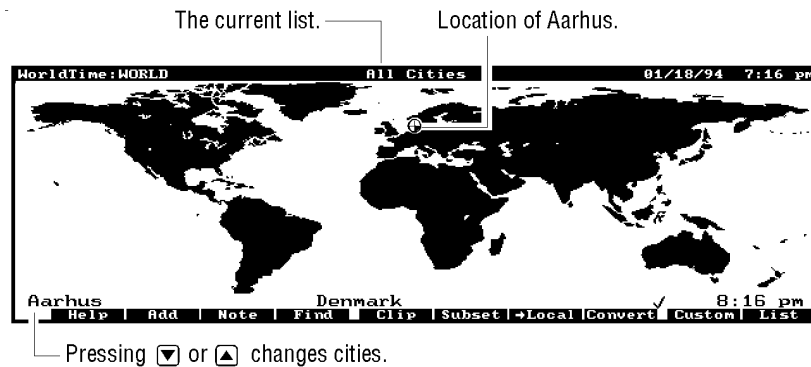
Pinpointing a City on a Map (Map)

To display a list again, press F10 again.

Converting times across time zones

Time conversions let you pick any time in a city and find out the corresponding time elsewhere. For instance, you can find out what time it is here when it is 5:00 p.m. in Barcelona. Actually, you can see what time it is *in any city* when it is 5:00 p.m. in Barcelona.

To specify a time in a city and temporarily convert the time for all other cities:

Select the city: either highlight it in a city list or display it on the map.

Press F8 *(Convert).*

Type in the time as hours.minutes. A period serves as well as a colon. In the 12-hour time format, typing a *indicates a.m.,* p *p.m.*

```
                 Time Conversion
         Enter a time for the city below
         to see what the corresponding
         times are around the world.

     City :  Barcelona                    ┌──────────┐
                                          │    OK    │
     Time   7:54pm                         └──────────┘
                                          ┌──────────┐
                                          │  Cancel  │
                                          └──────────┘
```
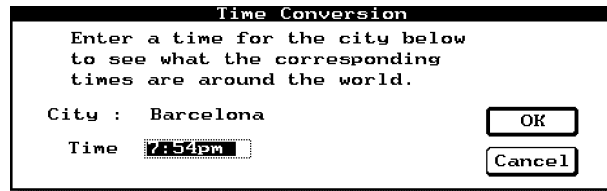
Press F10 *. **This displays the corresponding times in your local city and in all
other cities. A + before the time means the time is tomorrow, while a −
means the time is yesterday.***
Press ESC *to return to the normal display (current times).*

About the settings for daylight savings time

The three daylight savings time (DST) settings are:

Yes: For locations that are always on DST. Also for cities that
are currently on DST, but will go off it on an irregular
schedule. You then change the setting yourself.

No: For locations that do not use DST. Also for cities that are
currently off DST, but will go onto it on an irregular
schedule. You then change the setting yourself.

Automatic: For locations that go onto and off of DST on a
regular schedule. These schedules are provided:

  Northern: The schedule used in most of North America
  (first Sunday in April to last Sunday in October).

  Southern: The schedule used in most of the southern
  hemisphere (last Sunday in October to first Sunday in
  March).

  European: The schedule used in most of Europe (last
  Sunday in March to Last Sunday in September).

  None*: The same as No DST.*

Note

*For convenience' sake, some countries have an Automatic DST setting
even if their schedule does not exactly match the defined one.*

To change the DST setting (a shortcut):

If you want to change the DST setting for several cities, it is faster to use this shortcut than to change the city's record.

Display a city list and highlight the city.

Press ⁂ *to change the setting.* ⁂ *cycles through the three settings: Yes (Y), No (N), and Automatic (A).*

Repeat for the next city. The change is made to the city's record, and so it affects both city lists (All Cities and Custom Cities).

Using subsets of the city list

Using **Subset** , you can display a **subset** of the All Cities list that meets any criteria you specify. For example, you could display just those cities in a certain country, or just those cities that don't use daylight savings time.

For instructions on using the Subset feature, see chapter 4 or the online Help.

Example: To Define the Subset: All Cities in Mexico. Create a subset that displays all the cities in Mexico.

Press F6 *(Subset)* F2 *(Define). Fill in just the Country field, leaving all other fields neutral. "Neutral" means that any status will qualify for the subset. The dimmed Custom List check box is neutral.*

```
┌──────────────────────── Define Subset ────────────────────────┐
│ City [                    ]    Country [Mexico    ]            │
│                                                                │
│ Int'l Access [        ]   City Prefix [        ]   ▓ Custom List│
│ Category [              ][↕]  ┌─Time Offset From──────────┐    │
│ ┌─Daylight Savings──────┐    │ Hours [      ] ◉ System ○ Universal│
│ │ ○ Yes        ○ No     │    └───────────────────────────┘    │
│ │ ○ Automatic [None  ][↓]│    ┌─Location──────────────────┐    │
│ └───────────────────────┘    │ Latitude [     ] Longitude [     ]│
│                              └───────────────────────────┘    │
│ Note [                                              ]         │
│                                                                │
│  Help |General|      |      |      |      |     |Cancel| OK    │
└────────────────────────────────────────────────────────────────┘
```

The Subset Definition: Cities in Mexico

Press ⌨F10⌨*, name the subset Mexico, then view it: Mexico* ⌨F10⌨ ⌨F10⌨*.*

Name of subset.

```
WorldTime:WORLD              Mexico          01/18/94  8:06 pm
Local City
  Greenwich                  United Kingdom            8:06 pm

Mexico
  Acapulco                   Mexico                ✓   2:06 pm
  Campeche                   Mexico                    2:06 pm
  Cancun                     Mexico                    2:06 pm
  Ciudad Victoria            Mexico                    2:06 pm
  Durango                    Mexico                    2:06 pm
  Ensenada                   Mexico                   12:06 pm
  Guadalajara                Mexico                    2:06 pm
  Hermosillo                 Mexico                    1:06 pm
  La Paz                     Mexico                    1:06 pm
    Help  I  Add  I  Note  I  Find ▮ Clip ISubsetI→LocalIConvert▮ All  I  Map
```

The List of Cities in Mexico

To display the All Cities list again, press ⌨F9⌨*.*

Copying or moving information

You can use the Clipboard functions to copy and move information within World Time, as well as to and from other applications. You can also use Smart Clip (**Clip**) to copy formatted information quickly from *predefined fields* in the current application to another location. The clipping features are described in chapter 1.

Limits while using World Time

Maximum number of cities in a list: limited by available RAM disk space. Theoretical maximum: about 5,000. (All Cities list has about 480 cities to begin with.)

The association of some cities with certain countries is currently in flux, such as in eastern Europe and the former Soviet Union. The countries given here were correct at the time of this writing, but could change. You can edit a city's record if its country changes.

The latitude and longitude values are accurate to one-third of a

degree. The values are given with decimal fractions of a degree.

Maximum characters in a Note: 32 KB (about 30 screens).

World Time function keys

Function Keys for a City List or Map
Key Label Description

`Add`	Opens a template to define a new city.
`Note`	Displays the full-screen Note for the highlighted city.
`Find`	Searches for the specified character string (letters or other characters).
`Clip`	To copy predefined fields (a Smart Clip) from World Time to the Clipboard. Also to define new Smart Clips. Smart Clip definitions are also used in Custom Style printing. See chapter 1.
`Subset`	To display and/or define a specified subset of the city list.
`→Local`	Sets the highlighted city as the local city.
`Convert`	Converts times across time zones.
`Custo`	Displays the Custom Cities list. (Toggles with `All`.)
`All`	Displays the All Cities list. (Toggles with `Custo`.)
`Map`	Displays the map if a list is visible. (Toggles with `List`.)
`List`	Displays the current list if the map is visible. (Toggles with `Map`.)

Function Keys for a City Record (an Item)

Key Label Description

| Add | Opens a template to define a new city. |

| Note | Displays the full-screen note field for this record. |

| Find | Searches for the specified character string (letters or other characters). |

| Clip | To copy predefined fields (a Smart Clip) from World Time to the Clipboard. Also to define new Smart Clips. |

| Prev | Displays the previous city's record. |

| Next | Displays the next city's record. |

| Locate | Pinpoints the location of the current city on the map. Moving the cross hairs changes the latitude and longitude specified for the current city. |

6
The Stopwatch

Press ⟨&...⟩ ⟨W⟩ to start the Stopwatch application, which has a stopwatch, countdown timer, and alarm clock.

```
┌──────────────┬─────────Stopwatch, Timer, Alarm Clock──────────01/15/94  4:28 PM
   Stopwatch      0:00:00.0
  ────────────────────────────────────────────────────────────────────
   Timer 15         Message Pick up schematic         ☐ Repeat

   Time Remaining     0:00:00.0
  ────────────────────────────────────────────────────────────────────
   Alarm  [        ]              ☐ Alarm On
  ────────────────────────────────────────────────────────────────────
         ┌──────Stopwatch──────┐        ┌────────Timer────────┐     ┌─Alarm─┐
   Help  │ Reset │   │ Start   │        │ Reset │   │ Start   │     │ On/Off │
```
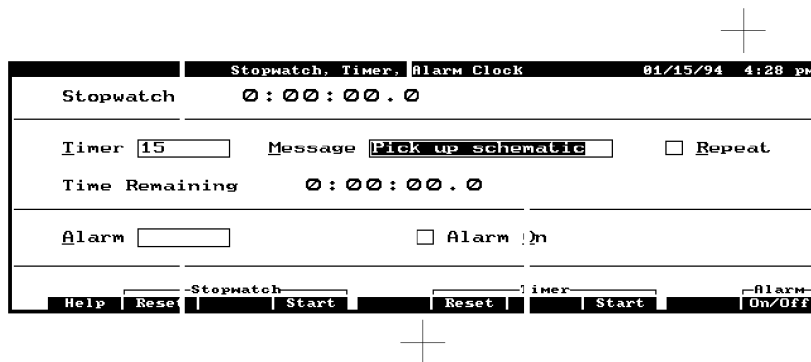
The Stopwatch, Countdown Timer, and Alarm Clock

To use the Stopwatch:

Press ⟨F2⟩ *to reset the time to zero, if necessary.*
Press ⟨F4⟩ *to start time counting.*
Press ⟨F4⟩ *to stop counting. Press* ⟨F4⟩ *again to restart.*

If the stopwatch reaches 24 hours, it resets to zero and continues.

To use the Countdown Timer:

In the Timer field, enter the number of minutes (or hours : minutes) to count down.

Optional: tab to the Message field and change the message to be displayed when the countdown reaches zero.
If you want the Timer to continue repeating the countdown until you stop it, tab to the Repeat check box and press ⟨SPACEBAR⟩.
Press ⟨F8⟩ *to start the countdown.*

Press ⌨F8 *to stop the countdown, if necessary.*
Press ⌨ENTER *or* ⌨ESC *to erase the message at the end of the countdown.*

The countdown either stops at zero (the default) or continues counting negatively, depending on the setting of ⌨MENU Timer Stop-Timer-at-Zero.

To cause the Countdown Timer to count past zero (negative time):

Press ⌨MENU ⌨T ⌨Z. This removes the checkmark next to the Stop-Timer-at-Zero command.
Repeat these steps to check the setting, causing the Timer to stop counting at zero.

To stop the Countdown Timer at any time:

Press ⌨F8.
Press ⌨F6 *to reset the Timer's countdown time as specified. This does not start the countdown.*

To use the Alarm Clock:

Press ⌨ALT + ⌨A *and enter the clock time for the alarm.*
Press ⌨F10 *to set the alarm. This checks the Alarm On check box.*

When the alarm goes off, press any key to stop the alarm.
To cancel an alarm that is set, press ⌨F10. This removes the check from the Alarm On check box.

7
The Memo Editor

Press ▤ to start the Memo Editor. Each memo you create is a separate file.

Memo filename.   Status bar.   Ruler.   Cursor position.

```
Memo: ESSAY.DOC                                    01/16/94 11:03 am
                        INSERT      FORMATTED     LINE: 1     COL: 12
◆  1  ◆    2    ◆    3    ◆    4◆     ◆    5    ◆    6    ◆    7
I. L-Phase: Surviving Design by Committee

    One of the most formidable tasks that a design engineer must
    undertake is that of "product design by committee." Under
    the best of circumstances, this means of analysis can take
    the concept of creativity to new heights of experience;
    under other circumstances, it can lend new understanding to
    the saying, "It was the best of times, it was the worst of
    times."
II. Things You Should Avoid During Presentations

    Public presentations offer a unique opportunity for avoiding
    pitfalls such as commitments and schedules.
      Help  |  Bold |Underln| Find  |Fnd&Rep|PrtFld|Promote|Demote |  Open  |  Save
```

The Memo Editor is a text editor with these formatting features:

Automatic word wrapping at the ends of lines.

Bold, underline, and normal typefaces.

Different font sizes for the display.

Settings for tabs, margins, and display spacing.

Insert mode (inserts text) and Replace mode (writes over text).

Outline (hierarchical) numbering available.

Formatted and unformatted (ASCII) file status.

Creating a memo

Each memo you create is a separate file.

To start a new memo:

Press ▤ *to start the Memo Editor.*

If the screen shows no text, you can start typing immediately. You will name the memo later when you save it.

If another memo is already displayed, press [MENU] [F] [N]. *The File New command automatically closes any open file first, prompting you to save it,*

if necessary.
Write your memo text.

Editing a Memo

Keys	Description
[FN] INS	Toggles between Insert mode and Replace (type-over) mode for text entry.
[CTRL]+[FN] INS	Inserts a line.
[CTRL]+[DEL]	Deletes a line.
[CTRL]+[ENTER]	Breaks to a new line, even in Replace mode.

Moving Around a Memo

Keys	Description
[FN] PG UP, [FN] PG DN	Moves backward or forward in memo by one screenful.
[FN] HOME, [FN] END	Moves to beginning or end of line.
[CTRL]+[◄], [CTRL]+[►]	Moves backward or forward one word.
[CTRL]+[FN] HOME, [CTRL]+[FN] END	Moves to beginning or end of memo.
[TAB]	Moves cursor to next tab stop.

To "stamp" the current date or time in a memo:

Press [FN] DATE or [FN] TIME. This inserts the current date or current time at the position of the cursor.
Date and time stamping are different from date and time print fields. Print fields insert codes into the memo that are interpreted only during printing.

Saving memo files

Any changes to a memo file are not saved on the RAM disk until you complete the save procedure.

To save a memo:

Press F10 *when the memo is done or you want to save what you've written so far.*

If the memo is new and has no name yet, you'll be prompted to name it: Type a new file name of up to 8 characters and press ENTER*. The Memo Editor automatically appends .DOC to the file name. To enter a name without a file extension, include a final period after the name.*

If you want to save the file in a different directory or drive than the current one, type the full path name in the box, such as A:\BUDGET\NEWMEMO.

To back up a memo onto a memory card:

This copies the current memo file to a memory card in drive A, the plug-in slot.

Open the memo file you want to back up.

Press MENU F A *(File Save-As).*

Specify a new or existing file on drive A (A:\filename) for the backup copy.

Press F10*.*

Saving memos as ASCII text files

Memo Editor files are one of two types:

Formatted. The file contains all the formatting information of the Memo Editor's features: margins, headers, typeface, outlining, and so on.

ASCII (Unformatted). An ASCII file is just characters (letters, numbers, spaces). *It has no formatting*, other than line breaks (made by pressing ENTER). The margins are automatically set at 9 and 72.

A new file is ASCII until you enter some formatting information.

If you want to create or edit a file for use in another program (whether a palmtop application or not), you should save it as an

ASCII (unformatted) file. *Programs other than the Memo Editor cannot read a Memo-Editor-formatted file.* For instance, if you wanted to transfer a memo from the palmtop to a PC with WordPerfect, you should transfer it as an ASCII file.

To save a memo file as an ASCII file:
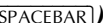
When you want to save or convert a memo file to ASCII, you can either change the file from formatted to ASCII (same file name), or create an ASCII copy of the formatted file (new file name).

Press ▣ *to start the Memo Editor.*
Open the file you want to convert.
Press [MENU] [F] [A] *(File Save-As).*
Accept the given file name (to alter the current file) or type a new one (to make an ASCII copy). (This does not affect the memo you see on the screen, it affects the version saved on disk.)
Check the ASCII check box ([TAB] [SPACEBAR] *).*
Press [F10] *to save the new format (or* [ESC] *to cancel it).*

Tips

To make it easy for you to distinguish formatted and ASCII files by their file names, you could change the file name extension for each ASCII file from .DOC (the default for a Memo Editor file) to something else, such as .TXT. The Memo Editor can detect the status of a file regardless of its extension.

The Save As dialog box also appears the first time you save a file, since you must give a new file a name. The ASCII check box appears unchecked if the file has any formatting information in it; otherwise it appears checked.

A shortcut for [MENU] File Save-As is [⇧] [F10].

Settings for saving memo files

To turn auto-saving on or off:

Auto-saving automatically saves the current state of the current memo every few minutes.

In the Memo Editor, press MENU O S *(Options Setup).*
Press the SPACEBAR *to check or clear the Auto-save check box.*
If you're turning auto-saving on, tab to the Frequency box and enter the
number of minutes between auto-saves.
Press F10 *when done.*

To change the default memo file name extension:

In the Memo Editor, press MENU O S (Options Setup).
Tab to the Default File Extension box and enter the new file name extension to
replace .DOC as the default when you save and open files.
Press F10 *when done.*

Password protection for memos

You can set or change a password for a memo by pressing MENU F W . Password protection for a memo takes effect the first time the memo is saved after the password has been set. Note that when you copy a file, its password (if any) is copied, too. Password protected files can be deleted, but a forgotten password cannot be removed from a file.

Formatting a memo

To start boldface, underlined, or bold underlined text in a memo:

Press F2 *(boldface),* F3 *(underlining), or* F2 F3 *(bold underlining) to start*
the new typeface.
Type the text you want in that typeface.
Press F2 *to stop boldface,* F3 *to stop underlining, or* F2 F3 *to stop bold*
underlining.

To change the typeface of existing text:

Highlight the text you want to change by simultaneously pressing ⌈⇧⌉ and an arrow key.
Press ⌈F2⌉ for boldface and/or ⌈F3⌉ for underlining.

To set headers and footers:

Press ⌈MENU⌉ ⌈T⌉ ⌈H⌉. Use ⌈TAB⌉ to move among the fields.
Enter the text for the header and/or footer you want.
ress ⌈F10⌉ (or ⌈ESC⌉ to cancel).

To set the margins:

The space for the left margin does not appear in the display, though it is shown on the ruler. The left margin does appear on the printed page. This setting applies to the current file only.
Press ⌈MENU⌉ ⌈T⌉ ⌈M⌉ (Format Margins).
Fill in the fields.

Left sets the number of columns (or characters) of indentation from the left side of a page.
Right sets the last available column on the right side of the page.

3. Press ⌈F10⌉ when done. (Or ⌈ESC⌉ to cancel the settings.)

To set or delete a tab stop:

Press ⌈MENU⌉ ⌈T⌉ ⌈T⌉.
Use the left and right arrow keys to position the vertical bar to the location for a tab stop.
Press ⌈F4⌉ to set the tab or ⌈F5⌉ to delete it.

To insert a page break (for printing):

Press ⌈MENU⌉ ⌈E⌉ ⌈I⌉.
Highlight Page break and press ⌈F10⌉.

To add page numbers (for printing):

If you want the page numbers to appear in a header or footer on each page, press ⌈MENU⌉ ⌈T⌉ ⌈H⌉ (Format Header/Footer).
Press ⌈F6⌉ (PrntFld).
Select "Page number field" and press ⌈F10⌉. The code ▐PG▐ appears. This is

converted to the actual page number during printing.
If you need to close the Header/Footer dialog box, press F10 *.*

To add date and time fields (for printing):

If you want the date or time field to appear in a header or footer on each page,
press MENU T H *(Format Header/Footer).*
Press F6 *(PrntFld).*
Select "Date field" or "Time field" and press F10 *. The code* ▮-DATE-▮ *or*
▮-TIME-▮ appears. This is converted to the date or time at the time of
printing.
If you need to close the Header/Footer dialog box, press F10 *.*

Editing or reading a memo

To open an existing memo:
Press MENU F O *.*
Type its file name and press ENTER *. The File Open command automatically*
closes any open file, prompting you to save it if necessary.

To re-open one of the last two memos opened:

Press ▤ to start the Memo Editor.
Press MENU F 1 *(or* MENU F 2 *).*

To delete a block of text:

Hold down ⇧ *and press an arrow key until all the text you want to delete is*
highlighted.
Press DEL *.*

You can also use CUT as described in the following procedure.

To CUT, COPY, PASTE:

The Clipboard holds text that has been "cut" (erased) or copied
so that it can be "pasted" back in. The Clipboard keys are
shown in purple on the keyboard (for instance, you press FN
then . to execute a cut).
Select the text of interest by highlighting it: place the cursor at the beginning of
the text region, then simultaneously hold down ⇧ *and press an arrow*
key until the text you want is highlighted.
Press FN *COPY (to copy) or* FN *CUT (to delete or to move text). Both COPY*

and CUT move the highlighted text into the Clipboard buffer.
If you want to copy or move the text, move the cursor to the new location to
insert the text.
Press FN *PASTE to copy the selected text into place.*

If you CUT something by mistake, press FN PASTE to restore it.

To save editing changes:

Press F10 (Save).

To cancel editing changes:

If you are using the Auto-save option, only the changes since the last auto-save can be canceled (not saved).

Press MENU Q *to quit the Memo Editor. A dialog box will ask whether you'd*
like to save the changes to the current file.
Press F5 *(No).*

Copying or deleting information

Smart clip: copying multiple fields from records

Smart Clip uses the Clipboard to copy information quickly from the current application to another one. For example, you might want to copy a name and phone number from the Phone Book into a memo. For more information, see also chapter 1.

To clip information from another application into a memo:
Start the application you want to copy from.
Select the records (highlight and press SPACEBAR *) whose information you want*
to clip. To select or de-select all records in the current list, press MENU E
A *.*
Press F5 *to display the Smart Clip list.*
Highlight the Smart Clip you want and press F10 *.*
Open the memo you want to copy to.
Place the cursor where you want the information to be copied.
Press FN *PASTE.*

Example: Clipping Appointment Information into a Memo.
Suppose you are writing a memo and would like to include

information about an appointment. You can use Smart Clip to quickly copy that information into your memo. Note that in the Appointment Book, you can clip only one record at a time. Leave the memo and the Memo Editor open.

Press ⌚ and open the appointment record you want (highlight it in the list, press ENTER *).*

Press F5 *(Clip) and select the Smart Clip for "All Fields, No Notes". Press* F10 *when done.*

Press ▤, position the cursor where you want to insert the information, and press FN *PASTE.*

Deleting, copying, or inserting memos

To delete a memo file:

Use the Filer application to delete files.

Press ▭ to start the Filer.

Highlight the file to delete. If it is not in the display, you might need to open its directory first: highlight the name of the directory and press ENTER *.*

Press MENU F D *. Press* F10 *to confirm.*

To rename a file, use the Filer application's File Rename command.

To copy a memo file:

Press ▤ to open the Memo Editor.

Open the memo to copy, if it is not already displayed.

Press MENU F A *(File Save-As).*

Type the new file name for the copy in the Save File As box.

Press F10 *to create the copy (or* ESC *to cancel).*

To insert another file into a memo:

Insert only other memo (.DOC) or ASCII files into a memo.

Press ▤ to open the Memo Editor.

Open the memo that will receive the insertion.

Press MENU F I *(File Insert).*

Enter the name of the file you want to insert into the current memo.

Press F10 *to insert the file.*

Searching a memo file

To find any piece of text in a memo:

With a memo open, press `F4` *(Find) and fill out the dialog box.*
Press `F4` *(Next) to search forward or press* `F3` *(Previous) to search backward from the current position.*

To repeat the search, press `⇧` `F4`.

To find and replace any piece of text:

From the beginning of a memo, press `F5` (Fnd&Rep) and fill out the dialog box.
Press `F4` *(FindNxt). This starts the search from the current position.*
  To replace the found text, press `F5` (Replace).
  To leave the found text unchanged, press `F4` (FindNxt).
    To automatically replace all text that matches, press `F6` *(Rep All).*

To go to (move the cursor to) a specific line in a memo:

With a memo open, press `MENU` `S` `G` (Search Goto-Line-Number).
Type in the line number and press `F10`.

You can find the line number of the cursor's current position in the status line (upper right).

Options for displaying the memo

To change the size of the characters in the display:

Press `FN` ZOOM (or use `MENU` View Character-Size). This cycles through three different display sizes:
  40 columns by 16 lines (biggest print).
  64 columns by 18 lines (default).
    80 columns by 25 lines (smallest print).

To change the spacing between lines in the display:

Press `MENU` `V` `Z` (View Character-Size).

Press TAB *to select the Display Line Spacing box.*
Enter a number, 1 through 9. This sets the number of pixels *between lines. A pixel is one dot on the screen.*
Press F10 *(or* ESC *to cancel).*

This setting does not affect printing.

To display or hide the ruler:

The ruler marks column numbers, margins, and tab settings. Press MENU V R (View Ruler). This toggles the ruler on and off.

Memo has been modified since last saved.   Cursor position.   Status bar.

```
Memo:                                        01/15/94 12:13 PM
MODIFIED  BOLD  UNDER    CAPS  INSERT    FORMATTED   LINE: 1      COL: 20
  1         2         3         4         5         6         7
```

Column numeration (x10).   Tab setting.   Ruler.
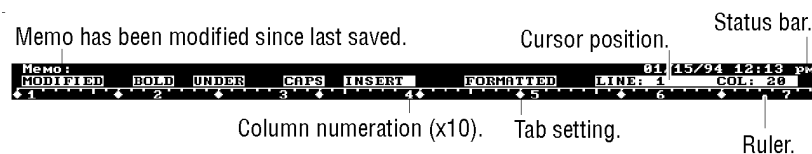
To display or hide the status bar information:

The status bar tells you whether the current file has been MODIFIED since last saved, has BOLDface and/or UNDERlining on, has capitalization on (CAPS), is in INSERT or REPLACE mode, or has formatting codes or not (FORMATTED or ASCII). It also shows the line and column position of the cursor. Press MENU V S (View Status). This toggles the status bar on and off.

To display or hide control characters:

When turned on, this displays carriage-return and tab characters. Press MENU V C (View Ctrl-Characters). This is a toggle setting.

Using outline-style numbering

Outline numbering creates text entries set off by indentation and hierarchical numbering. This can include indented text that is *not* numbered.

When outlining is active, it does this:

Each time you press [ENTER], another number or letter automatically appears in the proper sequence at the left margin or after an indentation.

You can change the **level** of numbering using Promote ([F7]) and Demote ([F8]). Demoting makes an item subordinate and promoting makes an item superior to the one above it.

Up to seven levels of hierarchy.

```
Memo: ANIMAL.DOC                          01/17/94 11:27 am
I. The Animal Kingdom
   A. Vertebrates
      1. Reptiles
      2. Mammals
         a. Primates
            i) Lemuroidea
            ii) Anthropoidea
               a) Platyrrhini
               b) Catarrhini
                  1) Circopithecidae
                  2) Pongidae
         b. Carnivores
            i) Creodonta
            ii) Fissipedia
               a) Aelluroidea
               b) Arctoidea
     Help  | Bold |Underln| Find  | Fnd&Rep| PrtFld |Promote|Demote |  Open | Save
```

← Higher levels.

← Lower levels.
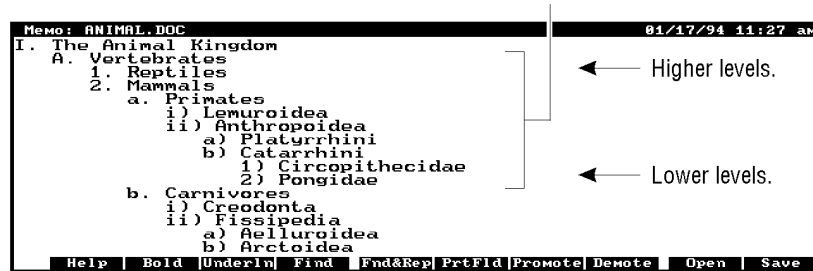
Outlined Text with Roman Numerals

Numbered heading.   Unnumbered text.

```
Memo: BASIC.DOC                          01/17/94 11:23 am
1. Basic Operation
   The basic operations are described below.
   1.1. Register Transfer
      The most basic of all operations is the transfer of
      information from one register to another.

   1.2. Memory Read/Write
      This operation initiates a transfer between the memory
      and the memory buffer.

   1.3. Bit Testing
      There must be a way to test one bit in a register and
      alter the sequence of control.

2. Target Level
     Help  | Bold |Underln| Find  | Fnd&Rep| PrtFld |Promote|Demote |  Open | Save
```

Outlined Text with Decimal Numeration

Starting outline (Hierarchical) numbering

First choose the numbering type:

This affects the current memo only. It affects the entire memo,
including existing text that is above the cursor's position.

Press MENU T O ***(Format Outline).***
Arrow to highlight Decimal or Roman numeral.
If you want to adjust the indentation, press TAB ***and enter a number of
character spaces (1-5).***
Press F10 ***.***

Then use Promote or Demote to start numbering:

Promote and Demote affect the numbering of the current line,
whether the line has text already or not.

Press F7 ***to start numbering on the current unnumbered line.***
If the line has no text yet, enter your text.
Press ENTER ***at the end of the entry. Another number (the next one in
sequence) appears. To remove a final number without text, press*** ▲ ***or*** ▼ ***.***

To create a sub-topic (subordinate entry) and increase indentation:

Press F8 (Demote). This "demotes" the numbering level of
the current line, such as from I. to A. or 1.1 to 1.1.1.

To create a super-topic (superior entry) and decrease indentation:

Press F7 (Promote). This "promotes" the numbering level of
the current line, such as from I.B. to II. or from 1.1.2 to 1.2.

To enter text without numbering:

Press F8 until there is no beginning number.
Pressing F8 again moves the unnumbered text back out to the
margin. Once you have entered unnumbered, unindented text
like this, the next promotion or demotion *starts a new outline*
(level I. or 1.).

To stop outline numbering and indentation:

Simply press [F8] (or [F7]) until numbering and indentation are gone, leaving the line flush against the left margin.
This affects the current line and future text, but not previous text.

Editing existing outlined text

To remove numbering from a subtopic:

Place the cursor on the line in question, and press [F8] until the numbering disappears.
If you want the text flush left, press [F8] again.

To promote or demote existing text:

Promoting raises the outline level of the current line, while demoting lowers it.
Place the cursor on the line to change.
Press [F7] (Promote) or [F8] (Demote).

Printing a memo

There are three paths to take for printing memos:
Print to Printer: You can print a memo using a printer connected to the palmtop.
Print to Printer with Connectivity Pack: You can print a memo from a PC that has the Connectivity Pack installed. (Copy the memo file from the palmtop to the PC, then print the file to the PC's printer using the Connectivity Pack Memo Editor.)
Print to File: You can print a memo from another computer that does *not* have the Connectivity Pack by printing to a file and transferring it with Datacomm.
About printing to a printer

Printing to a printer requires that a serial printer is properly

connected to the palmtop, and that both the printer and the palmtop are properly configured. You configure the printer settings for the palmtop via the Setup utility (&... S MENU O P). Chapter 28 should help you set up most printers.
About printing to a file
Printing to a file creates a print file that contains control codes that the printer (the one specified in the Setup utility) can interpret. To copy this file to another computer, use one of the file-transfer protocols given in the Datacomm application (&... C). You can then print out this memo file by copying the binary file to a printer.

To print a memo from the palmtop:

Press ▤ *to start the Memo Editor.*
Open the file you want to print (F9 *).*
Press MENU F P *(File Print).*
Highlight either the Printer or the File option button in the Print-to box.
Press F10 *to print.*

Setting up printing information

Press MENU F P S (File Print Setup) to specify:
How much printing should appear on a page.
Starting and/or ending the print-out with special information (initialization and termination strings).

Maximum number of printed lines per page.
You can change this for shorter or longer sheets.

```
                         Print Setup
   Page Length   (in lines) 60▼         ┌──────────┐
   Top Margin    (in lines) 0           │    OK    │
   Bottom Margin (in lines) 0           └──────────┘
                                        ┌──────────┐
   Initialization String [          ]   │  Cancel  │
   Termination String    [          ]   └──────────┘
```

Printer-control sequences to set up or end the printing job.

Field:	Meaning:
Page Length	Specifies the lines of printable area on the paper. For paper 8½ x 11 inches: The default page length (60) is appropriate for sheet-fed printers (such as HP Laserjet and HP Deskjet types), as well as for fanfold-paper printers set to skip the paper's perforations. Other fanfold-paper printers require a page-length setting of 66 lines. See the printer's manual for more information.
Top Margin	Specifies the number of blank lines to leave above the printed text. Default is zero lines for sheet-fed printers (like HP Laserjet and HP Deskjet) because the page length setting already takes top and bottom margins into account. Many fanfold-paper printers need a top margin setting of three.
Bottom Margin	Specifies the number of blank lines to leave below the printed text. Default is zero lines for sheet-fed printers (like HP Laserjet and HP Deskjet) because the page length setting already takes top and bottom margins into account. Many fanfold-paper printers need a bottom margin setting of three.
Initialization String	Specifies optional printer-control sequences (up to 128 characters) before the print-out begins. An initialization code might set landscape mode or select a certain font set. The exact codes and meanings depend on the printer.
Termination String	Specifies optional printer-control sequences (up to 128 characters) after the print-out ends. A termination code might set a form-feed to occur at the end of the print-out or reset portrait mode (for the next print-out). The exact codes and meanings depend on the printer.

To enter a control code on the palmtop:

Type ⟨\⟩ *nnn*, where *nnn* is a three-digit control code. For example, the control code for ESC is typed as \027.
Refer to your printer's owner's manual for information on which control codes are available and what they do.

Memo Editor function keys

Key Label Description

Bold	Starts/stops boldface; makes selected text bold.
Underln	Starts/stops underlining; makes selected text underlined.
Find	Searches for the specified text.
Fnd&Rep	Searches for the specified text and replaces it as

specified.

`PrntFld` To mark the spot where a page break, page number, current time, or current date should be inserted during printing.

`Pro ote` Raises the hierarchical numbering one level for the current line.

`De ote` Lowers the hierarchical numbering one level for the current line. Use also to eliminate numbering.

`Open` Asks for the name of a memo file to open.

`Save` Saves the current memo file.

8
The Note Taker

The Note Taker lets you create, save in a list, search, and edit
short notes. Use the Memo Editor to create or edit larger
memos, but use the Note Taker when you want to jot down
brief notes and keep them in a list for quick and easy access.
Since the notes are organized as items in a list rather than as
separate files, they are easy to scan, sort, search, and organize.
Press $\boxed{\&...}$ $\boxed{N}$ to start the Note Taker.

Current item.   Size of each note in bytes.   Data card for the current note.

```
NoteTa er:NOTES                All Notes              01/13/95  5:35 am
  Titl           Size
 ⊳Dead ines      64              Party Ideas
 ⊳Gift ideas     130
 ⊳Party Ideas    115
 ⊳Projects, home 291             Buried treasure theme,
 ⊳Projects, yard 148             scavenger hunt in the backyard
 ⊳Shopping list  225
                                 Charades

                                 Pinata
                                            (3/6)
    Help │ Add  │ Note │ Find ■ Clip │Subset│ S  t │Columns■ Open │
```
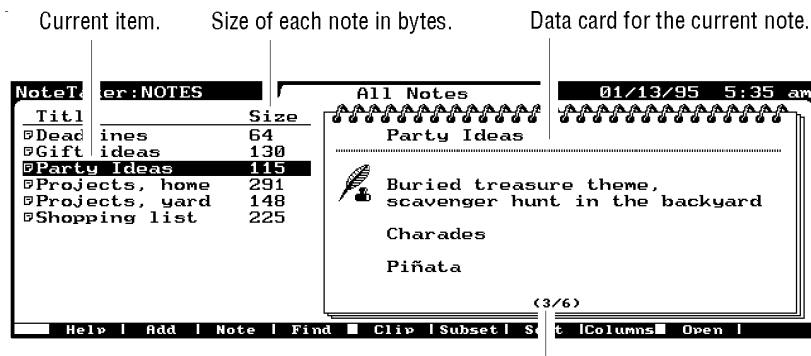
The third of six total entries.

The Note List

To open a note record:
In the note list, highlight an item and press $\boxed{\text{ENTER}}$ or $\boxed{\text{F3}}$
(Note). (Note displays the Full Screen Note.)
Press $\boxed{\text{F6}}$ (Prev) or $\boxed{\text{F7}}$ (Next) to see other notes.
The text of the note can fill more than one screen. To see more
text in the Note field or Full Screen Note, press $\boxed{\text{FN}}$ PG DN or
$\boxed{\text{FN}}$ PG UP.

Creating a note

Each note can be up to 32 KB long (about 30 screens).

To add a new note:

In the Note Taker, press F2 (Add).
Fill in the fields. Use TAB *to move among fields.*
    Title. *Identifies the note in the note list.*
    The main, unlabeled field is for your text.
    Category. *Includes a list of any categories used for notes. You can enter a*
        new category or press ▼ *to see the list and select an existing category.*
        This field can have up to 32 category choices or 255 characters (no
        more than 128 characters per choice). You can categorize the records to
        view subsets of notes just like you would view subsets of phone records
        or cities from the World Time city list.

Press F10 *when done, or press* F2 *to add another note. This saves the note*
    automatically. (Or press ESC *to not save the note.)*

```
NoteTaker:NOTES                Note              01/13/95   5:35 am
Title Party Ideas                      Category Children        ⬍

  Buried treasure theme, scavenger hunt in the backyard
  Charades
  Piñata
  Balloon volleyball
  Buckaroo Bob


      Help │ Add │ Note │ Find │ Clip │ Prev │ Next │      Cancel│ Done
```
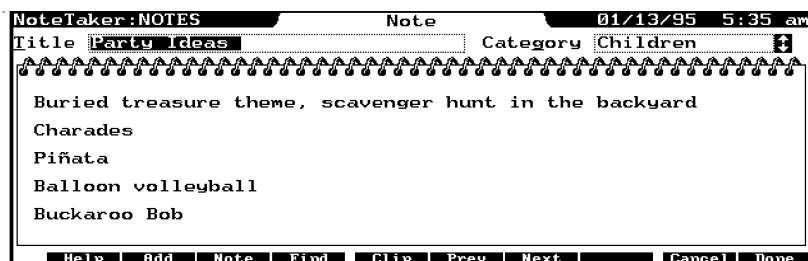
└— Full screen note (more text space).

Adding a Note Record

To "stamp" the current time or date in a note:

Press FN DATE or FN TIME. This inserts the current date or
    current time at the position of the cursor.

To save a note as an ASCII (unformatted text) file:

Highlight the note in the note list, or open the note record.
Press F3 F2 *(Note Save-As).*

Enter the file name. There is no default file extension.
Press F10 *to save the file, or press* ESC *to cancel.*

Editing or deleting notes

To edit (change) a note:

Display the note list.
Highlight the item you want to edit.
Press ENTER *or* F3 *(Note) to open the note's record.*
Edit the Title, Category, or Note.

   To clear the Title or Category, highlight it and press DEL.
   To restore the previous Title or Category, press ESC.
Press F10 *to save your changes, or press* ESC *to cancel them.*

To copy or move note information:

You can use the Clipboard functions to copy and move information within the Note Taker, as well as to and from other applications.

You can use Smart Clip to copy formatted information quickly from *predefined fields* in one application to another location. For example, you might want to copy a name and phone number from the Phone Book into a note. **Clip** provides predefined choices of fields to copy, and lets you define others yourself. The predefined Smart Clip from the Note Taker is "All Fields".

The Clipboard and Smart Clip are covered in chapter 1.

To copy a complete note record:

Display the note list and highlight the note you want to copy.
Press FN *COPY.*
Press FN *PASTE. The new note is sorted with the other notes.*

To insert an ASCII text file into a note:

In the Note Taker, open the note you want to add to.
Press F3 *(Note) to display the Full Screen Note.*

Position the cursor where you want to insert the text.
Press F3 *(Insert).*
Specify the file name. It must be an ASCII text file.
Press F10*.*

To clear (erase) the text of a note:

Highlight the note in the list or open its record.
Press F3 *(Note) to display the Full Screen Note.*
Press F4 *(Clear) to erase the Note field.*

To delete a note:
Display the note list.
Highlight the note to delete.
   If you want to delete several notes, select each note by
      highlighting it and then pressing SPACEBAR.
Press DEL*.*

To restore the last deleted or edited note:

Press MENU E U (Edit Undo) before doing another
operation.

To erase all notes:
Display the note list.
Press MENU E A *(Edit Select-All).*
Press DEL F10*.*

This deletes all the records from the current Note Taker file.

Changing the data card

The data card that shows up in your list of notes screen
contains information from the record of the highlighted note.
You can turn on (the default) or off the data card so that it is or
is not displayed from the list screen. You can also redefine what
the data card contains.

To remove the data card from the notes list:

Display the notes list. Press ESC or F10, if necessary.
Press MENU V *(View) to see the View commands.*

The default state of the Show-DataCard option is on (checked). Press $\boxed{\text{D}}$ to uncheck the box and remove the card from the list.

To restore the data card to the notes list, press $\boxed{\text{MENU}}$ $\boxed{\text{V}}$ $\boxed{\text{D}}$ (View Show-DataCard) to recheck the option.

To customize the data card definition:

The data card is simply a Smart Clip of the information on a note record. You can edit the definition of the data card Smart Clip using $\boxed{\text{F5}}$ (Clip) from the notes list. (Note in the data card definition that - and = are formatting commands that render thin and thick lines.) For more information on editing Smart Clips, see chapter 1.

Searching the Note Taker

To look up a note (speed-locate):

Display the note list.
Start typing the title of the note.
Press $\boxed{\text{ENTER}}$ when done, or arrow to the title you want.

The speed-locate operates as it does in the Database and the Phone Book.

To find any piece of text in the notes:

From the note list or record, press $\boxed{\text{F4}}$ (Find).
Fill in the box with the characters or text to search for. Optional: Select the check boxes (press $\boxed{\text{SPACEBAR}}$ to change) for the options you want.
Press $\boxed{\text{F10}}$ to search forward from the beginning of the list.
   Or press $\boxed{\text{F4}}$ (Next) to search forward from the current (highlighted) position.
   Or press $\boxed{\text{F3}}$ (Previous) to search backward from the current position

To repeat the search, press $\boxed{\text{⇧}}$ $\boxed{\text{F4}}$.
If you want to search through only the titles or categories of the notes (and not the bodies of the notes), you can speed up a

search by *not* checking Include Notes for the search.

Using multiple Note Taker files

You can create more than one Note Taker file, thereby creating more than one notes list in this application. Use $\boxed{\text{MENU}}$ File New or $\boxed{\text{MENU}}$ File Copy to create a new Note Taker file. Use $\boxed{\text{MENU}}$ File Merge to merge another Note Taker file into the current one.

Using subsets of the Note Taker

The `Subset` function displays a specified subset of your note list. You determine the subset by filling out the Title, Category, and/or Note fields according to the contents you want to select for. For example, you could display the titles of just those notes in the Category "Children", or just those notes that mention "computer." To define and view subsets of the note list, follow the instructions under *Defining subsets of a database*, chapter 6.

Limits while using the Note Taker

Maximum number of notes (items) in Note Taker (one file): limited by available RAM disk space. Theoretical maximum: about 5,000.

All the notes are part of one file. However, you can create more than one Note Taker file if you wish.

Maximum length of a note: 32 KB characters (about 30 screens).

Note Taker function keys

Function Keys for the Note List

Key Label	Description
`Add`	Opens a template to write a new note.
`Note`	Displays Full Screen Note for highlighted item.

`Find`	Searches for the specified character string (letters or other characters).
`Clip`	To copy predefined fields (a Smart Clip) from the Note Taker to the Clipboard. Also to define new Smart Clips and to edit the data card. See chapter 1. Smart Clip definitions are also used in Custom Style printing.
`Subset`	To display and/or define a specified subset of the note list.
`Sort`	Specifies how to sort the notes for the list.
`Colu ns`	Specifies how many columns appear in a list, how wide they are, and which fields they display.
`Open`	To open a different Note Taker file.

Function Keys for a Note Record (an Item)

Key Label	Description
`Add`	Opens a template to write a new note.
`Note`	Displays the Full Screen Note.
`Find`	Searches for the specified character string (letters or other characters).
`Clip`	To copy predefined fields (a Smart Clip) from the Note Taker to the Clipboard. Also to define new Smart Clips.
`Prev`	Displays the previous note.
`Next`	Displays the next note.

Function Keys for the Full Screen Note

Key Label	Description
`Save As`	Saves the current note in the specified ASCII text file.

`Insert` Copies the specified ASCII text file into the current note at the position of the cursor.

`Clear` Erases the Note field.

9
Pocket Quicken Basics

If you haven't started Pocket Quicken yet, turn to chapter 4 in the *Quick Start Guide* and follow the instructions there. Then read the material here as necessary.

This chapter covers the concepts fundamental to Pocket Quicken: files, accounts, categories, groups, transactions, and the register. If these Quicken terms aren't familiar, you should read the next few pages to gain an understanding of how Pocket Quicken data is organized. Also, at the end of this chapter is a section about sharing Pocket Quicken data with a desktop version of Quicken.

About files and accounts

Quicken data is kept in files. Within a file, you create one or more **accounts** to store different types of transactions. Accounts can be cash, credit card, or bank/check (savings or checking).

The initial file created when you start Pocket Quicken is called QDATA.PDT. (All Pocket Quicken files have a .PDT extension.)

Most users need only one file for their data, but may use several accounts within that file. For example, within one file you might have separate accounts for your checks, your cash, a company credit card, and a personal credit card.

You can **password protect** a Pocket Quicken file by following the instructions on on chapter 1.

To set up an additional account:

If you followed the instructions in chapter 4 of the *Quick Start Guide*, you should have set up a Pocket Quicken account.

In Pocket Quicken press [MENU] [L] [A] *(Lists Account) to see the list of accounts.*

Press [F2] *(Add) to see the Add Account screen.*

Fill in the Add Account screen, pressing [TAB] *after each entry. Press* [F1] *(Help) if you need a description of the fields—* [ESC] *then returns you to where you were.*

When you're finished, press [F10] *(Save).*

```
┌─────────────────Add Account─────────────────┐
│ Name [                    ]                  │
│ Desc [                          ]   ┌─Save──┐│
│ ┌─Account Type─┐                    └───────┘│
│ │ ◉ Bank/Check │                    ┌─Cancel┐│
│ │ ○ Credit Card│                    └───────┘│
│ │ ○ Cash       │                             │
│ └──────────────┘                             │
│ Balance (optional) [          ]              │
│          as of [ 1/18/1994  ] ▼              │
└──────────────────────────────────────────────┘
```

Adding an Account

To display the list of accounts:

There are two lists of accounts that you can display:
Press [ESC] until you reach the main list of accounts, which is your Pocket Quicken Home Base screen. You can do most tasks starting from here.
Press [CTRL]+[A] to display a list of accounts in the current Pocket Quicken data file.

To select another account to use:

The account selected becomes the current account for transactions.

Press [CTRL]+[A].

Use [▲] *and* [▼] *to highlight the account you want to use and press* [ENTER].

To edit information about an account:

You can change the name of a Pocket Quicken account and its description.

Press [CTRL]+[A] *Highlight the account you want to edit and press* [F4] *(Edit).*

Change the information as desired, pressing [TAB] *after each entry.*

When you're finished, press [F10] *(Save).*

To delete an account:

Deleting an account permanently removes all of that account's records from your file. *Once you delete an account there is no way to recover it.* When you delete an account, Pocket Quicken also deletes the account name from the category field of any transfer transactions.

Press [ESC] *until you reach the Pocket Quicken Home Base screen (the list of accounts).*

Highlight the account you want to delete.

Press [DEL].

Respond to the warning by selecting whether you want other accounts' transfer references to this account to be removed from the other accounts or not.

Press [F10] *(Delete) to complete the deletion or* [F9] *(Cancel).*

To trim your data file:

You can "trim" the current Quicken data file to remove old transactions. This doesn't reduce the file size, but it does make room for new transactions to be added without increasing the file size. Before you trim a file, you might want to use the Filer to make a backup copy of the file.

Press [ESC] *until you reach the Pocket Quicken Home Base screen (the list of accounts).*

Press [MENU] [F] [T] *(File Trim).*

Enter a date before which transactions will be removed.

Uncheck the relevant check box if you do not want to keep uncleared transactions before the set date.

When you're finished filling in the screen, press [F10] *(OK).*

To set up additional files:

Most people need only one Pocket Quicken file. However, you may want to set up additional files to keep, for example, your personal finances separate from your business finances; or, you may want to keep a separate file for each year's accounts.

Press [ESC] *until your reach the Pocket Quicken Home Base screen (the list of accounts).*

Press [MENU] [F] [N] *(File New).*

Fill in the Create New File screen, pressing [TAB] *after each entry.*

Don't give the file name an extension; Pocket Quicken
automatically gives the file a .PDT extension.

Press ⬚F1⬚ if you need Help.

When you're finished, press ⬚F10⬚ *to create the file.*

A newly created Pocket Quicken file becomes the current file.
You will need to set up accounts in it before you can add
transactions.

To choose another file:

When you start Pocket Quicken, it opens the last file you used.

Press ⬚ESC⬚ *until your reach the Pocket Quicken Home Base screen (the list of
accounts).*

Press ⬚MENU⬚ ⬚F⬚ ⬚O⬚ *(File Open) to open another Pocket Quicken file. For
more information on file commands, see Using file commands in chapter 1.*

About categories and groups

Pocket Quicken offers you two independent ways to organize
your transactions: using categories and using groups.

Category field.

```
┌─────────────────────────────────────────────────────────────┐
│ cket Quicken: QDATA.PDT    Add Transaction    03/11/94  3:36 pm│
│                                                               │
│    Date  3/11/1994  ⬇          ┌ Account                     │
│   Payee  ┌──────────────────┐  │ Checking            ⬇       │
│  Amount        0.00  ChkNum ┌──┘  Transaction Type           │
│ Category ┌───────────────────⬇   Check               ⬇       │
│    Trip  ┌───────────────────⬇   Cleared Status              │
│    Memo  ┌───────────────────┘   Not cleared ⬇               │
│                          Ending Balance:      0.00           │
│ ─────────────────────────────────────────────────────────── │
│  Help │ Add │Splits│      │ Reset │ Prev │ Next │ Void │Cancel│ Save│
└─────────────────────────────────────────────────────────────┘
```

Group field.

Add Transaction Screen

Screen dump of entry screen with a callout pointing out the
category and group fields.

What's a category?

A category tells you how you got your income (salary, dividends, bonus, etc.) or where you spent your money (auto, food, charity, etc.). Categories enable you to combine similar transactions in reports. For example, you could get a report of all your charitable gifts for last year.

Pocket Quicken provides you with predefined categories when you create your data file.

All accounts in a file share the same set of categories.

Categories can have subcategories, such as Fuel, Loan, and Service under the Auto expense category (Auto:Fuel, Auto:Loan, Auto:Service).

You can add and delete categories from the list, and you can demote categories to subcategories and promote subcategories to categories.

You assign categories to transactions as you fill in the Add Transaction screen. That process is covered in detail later in this chapter in the section *Entering transactions*.

To display the category list:

Press MENU L C (Lists Category); or, as a shortcut, press CTRL + C .

To add a new category or subcategory to the list:

Press MENU L C (Lists Category) to display the category list.
Press F2 *(Add) and fill in the fields. Press* F1 *if you need Help. When you're finished, press* F10 *(Save).*

You can also add a category or subcategory on the fly when you're entering a transaction. Simply type a new category name in the category field, press ENTER , and respond to the prompt. For a subcategory, type the category name, a colon, and then the new subcategory name. The new category is added to the list.

To change a category or subcategory:

When you edit a category or subcategory, you can change its name, description, or type. Change the Category Type field to promote a subcategory to a category (income or expense), demote a category to a subcategory of another category, or move a subcategory to be under another category.

Press MENU L C *(Lists Category) to display the category list.*
Highlight the category you want to change.
Press F4 *(Edit) and make your changes.*
When you're finished, press F10 *(Save).*

To delete a category or subcategory from the list:

When you delete a category, it is erased from the category field of any transactions to which it was assigned. When you delete a subcategory, its name is erased from the category list, but any transactions to which it was assigned are reassigned to its parent category.

Before a category with subcategories can be deleted, you must promote the subcategories or move them to another category.

Press MENU L C *(Lists Category) to display the category list.*
Highlight the category you want to delete.
Press F8 *(Delete).*

To merge two categories:

Merge two categories by making the category you don't want into a subcategory of the other category. Then, delete the subcategory. That way all its transactions are automatically reassigned to the parent category. See the previous procedures for changing categories and deleting categories.

What's a group?

Groups are independent of categories; you use groups to separate transactions by trip, client, project, or class. For example, you could assign all transactions on a business trip to a trip

named Phoenix, and then generate an expense report for that trip. Or, you might assign transactions for food, auto, hotel, etc. to a particular client so that you could later get a report of all you spent on that client.

If you're familiar with a desktop version of Quicken, you'll notice that group is analogous to class. In fact, if you exchange data between Pocket Quicken and a desktop version of Quikken, the group and class lists are merged.

In Pocket Quicken you can change the group field title among **Trip** (the default), **Project**, **Client**, or **Class** (a general group). Also, the groups you set up can have subgroups for further refining reports.

To change the group field title:

Press ⌜MENU⌟ ⌜O⌟ ⌜G⌟ (Options Group) to see the Group Preferences screen.

Select a title for the field from the Group Name list.

Optional: Check the Auto Fill box if you want Pocket Quicken to enter a group name automatically in each transaction. If you check this box, press ⌜TAB⌟ and type the group name you want to use.

When you're finished, press ⌜F10⌟ (Save).

Now, whenever you enter a transaction, the group field will have the title you specified, and, optionally, the group you specified will be entered as the default group automatically.

To display the group list:

Press ⌜MENU⌟ ⌜L⌟ ⌜G⌟ (Lists Group), or, as a shortcut, press ⌜CTRL⌟+⌜L⌟.

To add groups and subgroups to the list:

Press ⌜MENU⌟ ⌜L⌟ ⌜G⌟ (Lists Group) to display the group list.

Press ⌜F2⌟ (Add) and fill in the fields. Press ⌜F1⌟ if you need Help.

When you're finished, press ⌜F10⌟ (Save).

You can also add a group or subgroup when you're entering a transaction. Simply type a new group name in the group field, press ⌜ENTER⌟, and respond to the prompt. For a subgroup, type

the group name, a colon, and the new subgroup name. The new group is added to the list.

Use the group field for expense reporting

One of the most useful features of Pocket Quicken is the ability to track travel and entertainment expenses and then print them in a report. The group field enables you to make this happen. Here are some hints for effectively using the group field to track travel and entertainment expenses:

Set the group field title to best match your needs. If you track mostly trip expenses, use Trip; if you track mostly client-associated expenses, use Client; if you track mostly project-related expenses, use Project. However, if you track a mixture of expenses associated with various clients, trips, and projects, use the more general title of Class.

Add groups to the group list that reflect the character of the group of expenses. For example, you might create a group named Boston for tracking expenses on a business trip to Boston.

Use subgroups if you need to further refine your reports. For example, say you have a group named ClientA to track all your expenses associated with a particular client. If you make regular trips to that client's city, you might want to track the expenses for each trip by using the subgroups Trip1, Trip2, Trip3, etc. That way, you can get information about the total money spent on ClientA as well as the money spent on each trip you took to visit him.

Use categories as you normally would to track the type of expenses: food, lodging, auto, etc. That way you can get information on how much you spent on food, etc. for a specified group.

Whenever you want a printed report for a certain trip, client, etc., create your report using Pocket Quicken and then print it using the Memo Editor. See chapter 11 for more details.

Using the register

The account register is much the same as a paper check register for a checking account. It shows date, check number, payee, and payment or deposit amount for all transactions in the current account.

Account name. ——————————————— A plus (+) sign indicates a deposit; ——————
no sign indicates a payment.

```
Pocket Quicken: QDATA.PDT          Checking          03/11/94  2:46 pm
1994 Check# Payee                   Category/Trip      C   Pmt/Dep+
 3/ 8       Balance Forward         [Checking]         X   1,043.00+
 3/ 8       Mycompany               Bonus                  1,500.00+
 3/10 563   Al's Auto Repair        Auto:Service       *     100.00
 3/10 564   NW Electric                                       58.26
 3/11 565   Tubby's Ice Cream                                 12.95




                                    Ending Balance:          2,371.79
    Help   Add               Zoom  Balance      Void  Accnts   Edit
```

A Register for a Checking Account

A quick way to search the register is to type the first letter of a payee's name and watch the highlight move. Keep typing the first letter of the payee's name until that payee is highlighted. You use the register not only to view collective transactions in an account, but as a convenient starting point to accomplish many common Pocket Quicken tasks.

Tasks That Start from the Register

Task	Commands or Keys
Entering a new transaction.	Add (F2)
Zooming in to see more entries on the screen.	Zoom (F5)
Displaying the current account balance at the highlighted entry.	Balance (F6)
Voiding the highlighted transaction.	Void (F8)
Leaving the register to display the Home Base (the list of accounts).	Accnts (F9)

Editing the highlighted transaction.   Edit (F10)
Deleting the highlighted transaction.   DEL

Entering transactions

The transaction is the heart of Pocket Quicken. Enter a
transaction whenever you move money into or out of an
account.

The add transaction screen

Press F2 (Add) from an account register to see the Add Trans-
action screen.

```
Pocket Quicken: QDATA.PDT        Add Transaction         03/11/94  3:36 pm
     Date  3/11/1994    ⬇         ┌ Account ──────────────┐
    Payee  [                  ]     Checking            ⬇
   Amount          0.00   ChkNum  [        ]   Transaction Type
 Category  [                  ⬇     Check        ⬇
     Trip  [                  ⬇     Cleared Status
     Memo  [                  ]     Not cleared ⬇
                                 Ending Balance:         0.00
     Help │ Add │Splits│      │ Reset │ Prev │ Next │ Void │Cancel│ Save
```

Add Transaction Screen

To enter a transaction, fill in the Add Transaction screen and
then press F10 (Save). The palmtop beeps and returns to the
register.

Here's a description of the fields in the Add Transaction screen:

Field: Description:

Field	Description
Date	Enter the date of the transaction; the default is the current date. You can use QuickKeys (shortcut keys) to fill in certain dates—for example, + and - increment the date by one day. To see a complete list of these keys from the Add Transaction screen, press F1 (Help), tab to Date, and press ENTER ; press ESC to return where you were.
Payee	Enter the name of the party to whom you paid money or from whom you received money.
Amount	Enter the amount of the transaction. Don't worry about the sign of the amount; Pocket Quicken automatically adds or subtracts the

amount from the account based on the type of transaction—for example, a deposit is added to the account.

ChkNum   Enter the transaction number (optional). For a check, enter the check number; for a payment or invoice, enter the invoice number.

When the cursor is in this field, you can use ⊞ or ⊟ to change the current transaction number by one.

Category   Enter the category to use for reports (optional). If you enter a new category, you'll be prompted to add it to the category list.

To see the category list, press ▼. You can use this list to select a category for the transaction by highlighting the category you want and pressing ENTER.

To enter a subcategory, separate it from the category with a colon—for example, Auto:Fuel.

Trip   This is the group field, and Trip is the default title. See *What's a group?* earlier in this chapter if you want to change the group field title. Enter the name of the group to use for reports (optional). If you enter a new group, you'll be prompted to add it to the group list.

To see the group list, press ▼. You can use this list to select a group for the transaction by highlighting the group you want and pressing ENTER.

To enter a subgroup, separate it from the group with a colon—for example, Portland:Visit1.

Memo   Enter a one-line description of the transaction (optional).

Account   Enter the account for the transaction. The current account is the default. If you enter a new account name, you'll be prompted to create the new account, which, once created, becomes the current account for your transactions.

To see the list of accounts, press ▼. You can use this list to select an account for the transaction by highlighting the one you want and pressing ENTER. The account you select becomes the current account.

Transaction Type   Enter the transaction type, such as check or deposit. Use ▲ and ▼ to cycle through the acceptable types.

Cleared Status   Leave the status as Not Cleared for normal transactions. This field is used by Pocket Quicken during the reconciliation process. The only time you should select Cleared or Reconciled is when you're entering historical transactions that have already cleared your bank.

To add a transaction to a Pocket Quicken account:

From an account register press [F2] (Add) and fill in the Add Transaction screen, pressing [TAB] after each entry. For information on a field, see the above descriptions or use [F1] for Help.
When you're finished, press [F10] *(Save).*

To edit a transaction:

In an account register, highlight the entry you want to edit.
Press [ENTER].
Move to and edit the fields you want to change. Use [TAB] *to move from field to field.*
When you're finished, press [F10] *(Save), or press* [ESC] *to cancel.*

Note

If you change the check number or date, the location of the transaction in the register may also change—Pocket Quicken sorts transactions in the register by date and then by check number.

If you want to edit only the group or category field for an existing transaction, there is a shortcut:
In an account register, highlight the entry you want to edit.
Press [CTRL]+[C] *to display the category list, or press* [CTRL]+[L] *to display the group list.*
Highlight the category or group you want to use and press [F10] *(Use).*

This shortcut enables you to easily add a category or group to a transaction at a later, more convenient time.

To delete a transaction:

Deleting a transaction permanently removes it from the register and file. Instead of deleting a numbered check, consider

voiding it.

In an account register, highlight the entry you want to delete.
Press ⌑DEL⌑**.**

To void a transaction:

By voiding a check in the register rather than deleting it, you maintain consecutively numbered check records. The word VOID is inserted before the payee name on the transaction and the check is marked as cleared. A voided check remains in the register; a deleted check does not.

In an account register, highlight the entry you want to void.
Press ⌑F8⌑ *(Void).*

Using QuickFill and QuickKeys

When entering transactions, you can use **QuickFill** and **QuickKeys** to save you time and keystrokes.

QuickFill   When you start typing in the Payee, Category, Account, or Transaction-type field, Pocket Quicken automatically fills in the field with potential matches to what you're typing. Keep typing until QuickFill matches the entry you want, then press ⌑TAB⌑ to move to the next field.

For a subcategory, type a colon and then start typing the subcategory name.

You can turn QuickFill on or off (the default is on) by pressing ⌑MENU⌑ ⌑O⌑ ⌑Q⌑ (Options Quickfill). If you want more information on the QuickFill preferences, look up QuickFill in the online Help index.

QuickKeys In some cases you can press a single key to complete an entire field. An example is pressing ⌑T⌑ in the date field to insert today's date. Once you're familiar with Pocket

Quicken, look up QuickKeys in the Help
index to get more information and see a list
of available QuickKeys.

Splitting transactions

Sometimes you need to divide a transaction between multiple
categories or groups. For example, one check to a computer
store might cover a piece of hardware, some software, and
some office supplies. You can split a transaction like that to
assign portions of the total amount to different categories or
groups. You can enter up to 30 splits for a single transaction.

To split a transaction:

*Fill in the Add Transaction screen for the total amount of the transaction and
then press* `F3` *(Splits) to see the Transaction Splits screen.*
*Fill in the Category, Group, Memo, and Amount for each portion of the
transaction. Use* `F6` *(Prev) and* `F7` *(Next) to move between splits.*
When you're finished entering splits, press `F10` *(Done) to save the splits and
return to the Add Transaction screen.*
Press `F10` *(Save) to save the transaction.*

To edit a split transaction:

*In an account register, highlight the entry with the splits you want to edit and
press* `ENTER`.
Press `F3` *(Splits).*
Move to and edit the fields you want to change. Use `F6` *(Prev) and* `F7` *(Next)
to move between splits, and use* `TAB` *to move from field to field.*
When you're finished, press `F10` *(Done).*

Look up Transactions, Splitting in the online Help index for
more details about splitting transactions.

Transferring money between accounts

You can use account transfers to record many types of
transactions:
Movement of funds from a checking account to a savings
account.
Cash advances from your credit card to your checking account.

Payments from your checking account to your credit card account.

Note

Accounts appear at the bottom of the category list in brackets ([ ] or {}). Accounts in square brackets ([ ]) represent accounts from the current Pocket Quicken file, and accounts in curly brackets ({}) represent accounts from another version of Quicken that are not present in your file. Account names are added to the category list automatically whenever you create a new account and whenever you import data that has transfers to accounts that don't exist in Pocket Quicken (those transfers are preserved within Pocket Quicken).

When you complete the transaction, Pocket Quicken automatically creates a parallel transaction in the receiving account. If the source transaction is a payment or decrease, the destination transaction is a deposit or increase.

To record a transfer transaction:

Fill in the Add Transaction screen for the full amount of the transfer.
In the Category field, select the receiving account as the category:
    Press ▼ *to display the category list.*
    Press FN *END to move to the end of the list.*
    Highlight the account in brackets that you want to be the receiving account and press ENTER.
When you're finished, press F10 *(Save) to save the transaction.*

You can also split a transfer transaction between accounts. If you assign more than one portion of the split to a single destination account, Pocket Quicken sums those portions and enters one transfer transaction for that destination account.

Changing your entry preferences

You can change the way a few things work during transaction entry. See the illustration in the following procedure to see what you can change.

To change entry preferences:

Press MENU O E *(Options Entry).*

```
        Entry Preferences
  ☑ Beep when modifying a transaction
  ☑ Confirm when modifying a transaction      ┌──────┐
  ☑ Confirm delete/void transaction           │ Save │
  ☐ Warn if transaction has no Category        └──────┘
  ☐ Warn if transaction has no Trip            ┌────────┐
  ☐ Start register in small font               │ Cancel │
                                               └────────┘
```
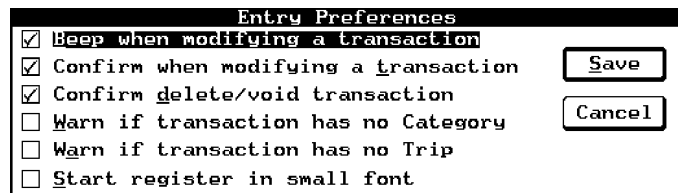
Entry Preferences

Use TAB *to move to the preference you want to change. If you need a
description of a preference, press* F1 *for Help.*
Press SPACEBAR *to check or uncheck it (turn it on or off).*
When you're finished making changes, press F10 *(Save).*

Sharing data with desktop Quicken

If you have a desktop version of Quicken, you can merge or
synchronize a Pocket Quicken file with a desktop Quicken file.
This capability enables you to keep the same accounts on both
your palmtop and desktop computers accurate and up-to-date.
Take the palmtop on the road; and when you return, merge or
synchronize your Pocket Quicken file with your desktop Quik-
ken file.
The best way to combine data from Pocket Quicken files and
desktop Quicken files involves using the palmtop Connectivity
Pack.

Using the connectivity pack to merge or synchronize
Quicken files

The Connectivity Pack Xlate/Merge utility enables you to
syncronize, merge, or copy Quicken files between your
palmtop and desktop PCs. See the Connectivity Pack User's
Guide for instructions.

Importing and exporting Pocket Quicken files

If you don't have the Connectivity Pack, you can exchange data with desktop Quicken by using the Import and Export commands. However, you still need a way to transfer a file from one system to another. For instance, if you have a memory-card drive on your PC, you can use a memory card as the medium; or, you can connect the computers with the HP 1015A serial cable and then use Kermit or XMODEM protocol to transfer the file.

Export   Exports transactions from the current Pocket Quicken account and saves them to a Quicken Interchange Format (.QIF) file. A .QIF file, when imported by another Quicken version, is converted into the appropriate format and merged with a data file on that other version. Use this command on a Pocket Quicken account when you want to merge some or all of the data with a file on a desktop version of Quicken. If you want to export transactions from more than one Pocket Quicken account, you must use the Export command separately for each account.

Note

Exported data must conform with the requirements of the receiving version of Quicken. The requirements for different versions of desktop Quicken are in the online Help index under the topic Exporting.

Import   Takes a file in the Quicken Interchange Format (.QIF) and merges the data with a Pocket Quicken (.PDT) file. Use this command when you've exported data from another system and want to merge it with your Pocket Quicken file.

To export Pocket Quicken data from the current account:

Press ⎡ESC⎤ *until you reach the Pocket Quicken list of accounts.*
Press ⎡MENU⎤ ⎡F⎤ ⎡E⎤ *(File Export).*
Answer the displayed questions for what transactions and lists to export. Press ⎡F1⎤ *for Help.*
Press ⎡F10⎤ *(File) and name the export file. Press* ⎡F1⎤ *for Help.*

When finished, press $\boxed{\text{F10}}$ *(OK) to complete the export.*

The result of this procedure is that you've created a .QIF file in the current directory that is ready to be transferred and imported to another version of Quicken.

To import a .QIF file into Pocket Quicken:

When you export a desktop Quicken file for importing into Pocket Quicken, you need to create several QIF files on the desktop version—one with only accounts and category information, and one for each account containing only the transactions for that account. Import the account and category information first, then the account transactions.

Press $\boxed{\text{ESC}}$ *until you reach the Pocket Quicken list of accounts.*

If you're importing a set of transactions, highlight the account you want it to go into.

Press $\boxed{\text{MENU}}$ $\boxed{\text{F}}$ $\boxed{\text{I}}$ *(File Import).*

Select the file to import and then press $\boxed{\text{F10}}$ *(OK).*

Answer the displayed questions for what data to import. Press $\boxed{\text{F1}}$ *for Help.*

When finished, press $\boxed{\text{F10}}$ *(Import) to merge the data in the .QIF file with the data in the current file.*

10
Balancing your Pocket Quicken checkbook

Pocket Quicken enables you to balance or "reconcile" your bank statement with your Pocket Quicken account. You can balance to the degree of accuracy that works for you. You can track down every cent if you prefer, but Pocket Quicken doesn't require you to balance to the penny.

The general reconciling procedure

When your bank statement arrives, follow these basic steps to reconcile your account. If you have two or more statements that need reconciling, start with the earliest statement and reconcile each one individually.

If this is the first time you've reconciled the bank account, check to see if you need to enter more transactions or update your opening balance. See the following section, Balancing your account for the first time.

Start reconciling by entering information from your current bank statement. See the section entitled Starting reconciliation.

Mark the transactions that have cleared your bank account in the Reconcile window. See the section entitled Marking cleared transactions.

Compare the totals of cleared items in the Reconcile window with those on your bank statement. See the section entitled Completing reconciliation.

Balancing your account for the first time

Before you can reconcile your account for the first time, you need to do two things:

Enter all transactions into your account that have not been previously marked as cleared. These are all transactions that have not shown up on previous bank statements. In most cases you'll be reminded to enter all uncleared

transactions because the transactions appear on your bank statement when you're trying to reconcile. You can enter these transactions in the register as you find them during reconciliation.

Update your Pocket Quicken opening balance to reflect the amount actually in your account when you began using Pocket Quicken. This amount should match the opening balance on your bank statement. You can edit the opening balance entry in your register, or you can create an adjustment at the end of your first reconciliation.

Example. Suppose the ending balance on the bank statement for your checking account was $200.52 on December 31, 1994. You started using Pocket Quicken on January 12, 1995. You used the ending balance from your December bank statement as the balance for your Pocket Quicken checking account. Then you entered transactions from your paper check register from January 1 to 12 into Pocket Quicken. From January 12 on, you entered all transactions into Pocket Quicken every few days as they occurred.

In February you receive your January 31 bank statement. You see two checks (totaling $80) that you wrote in December had not cleared the bank by your December statement. Now they have cleared the bank, so they appear on the January bank statement. You didn't enter those checks in Pocket Quicken because they occurred before January 1. Even though those two checks were written before the date of your first Pocket Quicken transaction, you need to enter them into the register. If you don't enter these uncleared transactions, Pocket Quicken will create an adjustment entry at the end of the reconciliation to reflect the $80 difference.

Reconciling the account

To reconcile the current account with the bank statement:

Press [MENU] [A] [E] *(Activities Reconcile).*

Taken automatically from your account. ── You enter the ending balance from your bank statement.

```
                     Starting Bal nces
Statement Opening Balance      1,043.00
  Statement Ending Balance ▇▇▇▇0.00          [ Next ]

Srvc Chrg [          ] Date 3/11/1994 ⬇      [ Cancel ]
  Category [                       ] ⬇

Interest  [          ] Date 3/11/1994 ⬇
  Category [                       ] ⬇
```

If you enter service charge or interest amounts here, those transactions will be added to the register.

The Reconcile Register Screen

Enter the ending balance from your bank statement, any service charge information, and any interest information. Press TAB *after each entry.*

When you're finished with this screen, press F10 *(Next) to see a list of all uncleared transactions.*

Compare your bank statement list to this list—verify that the amounts are the same and that there are no missing entries in Pocket Quicken that have cleared the bank.

For an uncleared transaction that matches the bank statement transaction, highlight it and press F3 (Clear).

For a bank statement transaction that is not in the uncleared list, use F2 (Add) to enter it. Be sure to select Cleared in the Cleared Status field.

For a transaction that has an incorrect amount or other error, use F4 (Edit) to correct it. Be sure to mark the transaction as cleared, also.

When you've finished clearing transactions, press F10 *(Done). If you get the Congratulations! message, press* ENTER *to complete the reconciliation. If, however, you see a warning message, the account doesn't balance. See the next section for what to do.*

Solving problems

If your account doesn't balance, you'll see the reconcile Warning screen when you press `Done` to complete reconciliation.

```
┌─────────────────────────────────────┐
│             Warning                 │
│   There is a balance difference     │
│         of:      -219.00            │
│                                     │
│   You may either allow Quicken to   │
│     add a Balance Adjustment or     │
│   return to the Reconcile Register. │
│                                     │
│   [Adjustment]    [Register]        │
└─────────────────────────────────────┘
```
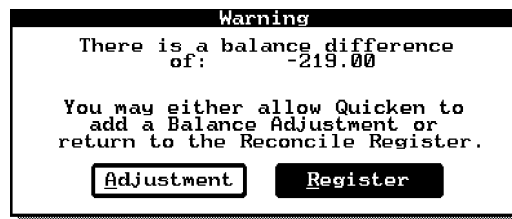
Reconcile Warning Screen

If the difference is small, you may want to have Pocket Quicken adjust for it—see the later section *Having Pocket Quicken adjust for differences*. Otherwise, you'll need to track down the cause of the difference to make your account balance.

Correcting differences

If your account doesn't balance, the difference is usually due to one or more of the following reasons:

Incorrect number of payments or deposits checked off as cleared.

Incorrect dollar amounts on some items.

Incorrect opening or ending account balances.

Check the number of payments and deposits

Check the register for missing or mislabeled payments or deposits that are on your bank statement but not on your check register. Systematically check to see if:

You missed recording an item in the check register.

You missed marking an item as cleared.

You mistakenly marked an item as cleared.

You entered any transactions twice.

You entered a payment as a deposit or a deposit as a payment.

Check the dollar amounts of items
If there's no problem with the number of items marked as cleared, compare the dollar amounts of the checks and deposits on your register to the bank statement. Keep in mind that you may have recorded all items, but typed an amount incorrectly, or that the bank may have made a mistake by processing a transaction for a different amount than you wrote it for.
Check the opening and ending balances
Incorrect opening or closing balances are particularly likely sources of problems for your first reconciliation.

Having pocket quicken adjust for differences

You might decide to ignore the difference between your check register and the bank statement. Ignoring the difference is appropriate if the amount is small and you feel it is not worth your time to track it down. Even though you decide to ignore the difference, you'll want to have Pocket Quicken enter an adjustment for the amount of the difference. That way you'll be starting with accurate totals the next time you reconcile your account.

To have Pocket Quicken add a balance adjustment:

Press A *(Adjustment) from the reconcile Problem screen to have Pocket Quicken create an adjusting entry to your register.*

```
┌──────────────── Balance Adjustment ─────────────────┐
│ Quicken is about to add this balancing               │
│ entry to your register.  Please edit      ┌───────┐  │
│ the optional category and the date.       │ Add   │  │
│                                           └───────┘  │
│  ┌──────────────────────────────────────┐           │
│  │   Payee: Balance Adjustment          │ ┌───────┐ │
│  │  Amount:       -219.00               │ │Cancel │ │
│  │ Category: [_____]▼│ └───────┘ │
│  │ TranType: Deposit                    │           │
│  │     Date: [3/11/1994   ]▼            │           │
│  └──────────────────────────────────────┘           │
└──────────────────────────────────────────────────────┘
```

You have the option of editing the Date and Category fields. When you're finished editing, press F10 *(AddAdj) to add the adjustment transaction to the register.*

Updating your previously reconciled balance

If the opening balance from your bank statement was different from the amount Pocket Quicken expected as your previously reconciled balance, you need to account for the difference. The balance might differ for one of these reasons:

You are balancing your Pocket Quicken account for the first time. Pocket Quicken uses the amount of the opening balance in your register as the opening balance amount for your bank statement when you reconcile. When you set up the Pocket Quicken account, you may have entered a balance that was different from the actual amount in your bank account. Also, there are probably transactions missing from your Pocket Quicken account that affect the balance. See *Balancing your account for the first time* earlier in this chapter.

You were using Pocket Quicken and reconciling your bank account, then you started recording earlier transactions in Pocket Quicken. For example, say it's July. You started recording transactions in May and subsequently reconciled your account for May and June. Then you went back and recorded transactions starting in January so you could generate more comprehensive reports. After entering these earlier items, you noticed that the ending balance in the check register was incorrect. So, you updated the date and amount of the opening balance for the account. In this case see *Adding earlier transactions to Pocket Quicken* later in this chapter.

You have started reconciling with the current bank statement, but you have not reconciled each of the previous month's statements. You should reconcile one month at a time, starting with the earliest month.

You have changed or deleted a previously reconciled transaction. Pocket Quicken always asks you to confirm a change to a previously reconciled transaction. You may need to continue reconciling and have Pocket Quicken record an adjustment transaction when the reconciliation is complete.

Adding earlier transactions to Pocket Quicken

If you've used Pocket Quicken to record and reconcile transactions, you may want to add earlier transactions to your account so you can create more comprehensive reports. To keep information in your account accurate, you need to follow the steps in the example below.

Example: adding earlier transactions to your account

In this example we assume that you started entering transactions in June. When you set up the Pocket Quicken bank account, you used the ending balance from your May statement as the opening balance for the account. You've already reconciled your June bank statement. Now you want to go back and add earlier transactions starting on January 1.

Make note of the ending balance in your Pocket Quicken register before you begin to enter earlier transactions.

Change the date and amount of the Opening Balance transaction in the Pocket Quicken register to reflect the opening balance on January 1.

Enter all the earlier transactions starting January 1 into your account, just as you would enter any current transaction.

When you have finished entering transactions, the ending balance in the register should be the same as it was when you started.

Reconcile all the transactions that you entered for previous months (January to May).

Now you can reconcile for the current month (June).

11
Creating and printing Pocket Quicken reports

Using Pocket Quicken you can create three types of reports:
Your transaction register for an account.
The balances of all accounts in your Quicken data file.
An "expense report"—the transactions (income and expense) for a selected group, date range, and/or account, sorted by categories.
You use Pocket Quicken to create a report file, and then you use the Memo Editor to view or print the file. When the report is created, connect a printer and print the report file like you would any other memo. When you open the report file in the Memo Editor, remember the file will reside in the directory in which you created it. The path to your report file could be, for example, C:\QUICKEN\.

Note

When you print a Pocket Quicken report using the Memo Editor, you should change the margins to 1 (left) and 81 (right) to get the best looking reports. In the Memo Editor menu, select Format Margins to set the margins.

To create a report file for the current register:

This creates a printable file containing transactions from the current account. Use the Memo Editor to print or view the file. Remember to change the margins in the Memo Editor to 1 (left) and 81 (right) before you print.

Press MENU R T *(Reports Transaction) to see the Create Transaction Report screen.*

```
┌─────────────────────────────────────────────────────────┐
│              Create Transaction Report                  ▓│
│ Account register: Checking                    ┌────────┐ │
│                                               │ Create │ │
│ Title TRANSACTION REPORT                      └────────┘ │
│                                               ┌────────┐ │
│ Report dates  1/ 1/1994  ▼  through  3/11/1994 ▼│Cancel │ │
│                                               └────────┘ │
│ ☐ Include splits?                                        │
└─────────────────────────────────────────────────────────┘
```

Fill in the screen, pressing ⎡TAB⎤ *to move between fields.*

> Title. Optional: Enter a title for the report. If you don't change it, Pocket Quicken uses the title "TRANSACTION REPORT".
>
> Report dates. Enter the beginning and ending dates for the range you want to print.
>
> Include Splits. Use the spacebar to check this box if you want to include split information in the report. For information on splitting transactions, see chapter 9.

When you're finished filling in the screen, press ⎡F10⎤ *(Create) to see the list of print files.*

Note

If you choose an existing file to print to, it will be overwritten.

Also, don't give a new file name an extension. Pocket Quicken automatically gives report files a .DOC extension.

Type or highlight a file name and press ⎡F10⎤ *(OK).*

To create a report file for all current balances:

This creates a printable file containing all account balances in your Pocket Quicken data file. Use the Memo Editor to print or view the file. Remember to change the margins in the Memo Editor to 1 (left) and 81 (right) before you print.

Press ⎡MENU⎤ ⎡R⎤ ⎡B⎤ *(Reports Balances) to see the Create Account Balances Report screen.*

```
┌──────────────────────────────────────┐
│    Create Account Balances Report    │
│ Title ▓ACCOUNT▓▓BALANCES▓▓REPORT▓     │
│                                      │
│ Include balances as of │ 3/11/1994 │▼ │
│                                      │
│        ┌────────┐    ┌────────┐      │
│        │ Create │    │ Cancel │      │
│        └────────┘    └────────┘      │
└──────────────────────────────────────┘
```

Fill in the screen, pressing TAB *to move between fields.*

Title. Optional: Enter a title for the report. If you don't change it, Pocket Quicken uses the title "ACCOUNT BALANCES REPORT".

Include Balances as of. Enter the date for which you want the balances.

When you're finished filling in the screen, press F10 *(Create) to see the list of print files.*

Note

If you choose an existing file to print to, it will be overwritten.

Also, don't give a new file name an extension. Pocket Quicken automatically gives report files a .DOC extension.

Type or highlight a file name and press F10 *(OK).*

To create a report file for categories:

This creates a printable file that lists all transactions by category. The list can be restricted by dates, by account, and/or by group, creating a specific expense report. Use the Memo Editor to print or view the file. Remember to change the margins in the Memo Editor to 1 (left) and 81 (right) before you print.

Use this procedure to create a business expense report.

Press MENU R C *(Reports Category) to see the Create Category Report screen.*

```
┌─────────────────────────────────────────────┐
│           Balance Adjustment                │
│ Quicken is about to add this balancing      │
│ entry to your register.  Please edit   ┌───────┐
│ the optional category and the date.    │ Add   │
│                                        └───────┘
│ ┌─────────────────────────────────┐    ┌───────┐
│ │    Payee: Balance Adjustment    │    │Cancel │
│ │   Amount:      -219.00          │    └───────┘
│ │ Category: [                  ]▼ │
│ │ TranType: Deposit               │
│ │     Date: [ 3/11/1994 ]▼        │
│ └─────────────────────────────────┘
└─────────────────────────────────────────────┘
```

Fill in the screen, pressing `TAB` *to move between fields.*

> Title. Optional: Enter a title for the report. If you don't
> change it, Pocket Quicken uses the title "ITEMIZED
> CATEGORY REPORT".
>
> Account. Select Current Account to constrain the report to
> the current account only; or select All Accounts (the
> default) if you want the report to cover all accounts in the
> current file.
>
> Report dates. Enter the beginning and ending dates for the
> range you want to print.
>
> Trip. Optional: Enter a group for the report. If you enter a
> name here, you will create an expense report by category
> for just the trip (or client, project, or class) you specify.

When you're finished filling in the screen, press `F10` *(Create) to see the list of print files.*

Note

If you choose an existing file to print to, it will be overwritten.

Also, don't give a new file name an extension. Pocket Quicken automatically gives report files a .DOC extension.

Type or highlight a file name and press `F10` *(OK).*

12
Calculator basics and math functions

The palmtop Financial Calculator has its own set of applications for problems of:
General arithmetic (chapter 12).
Business percentages, including markup and margin (chapter 13).
Time value of money and amortization (chapter 14).
Interest rate conversions (chapter 14).
Uneven cash flows (chapter 15).
Currency and other unit conversions (chapter 16).
One- and two-variable statistics (chapter 17).
Date calculations (chapter 18).
Solver equations that you enter (chapter 19).
Function graphing (chapter 19).
Customizing the Calculator (chapter 20).
Press $\boxed{{+- \atop \times /}}$ to start the Calculator, and press $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ to see the list of applications to choose from:

```
Calculator              Arithmetic            03/12/94  9:50 am
 File   Edit   Clear   Applications  Options   Quit   Help
                        TVM           Ctrl+T
                        Cash Flows    Ctrl+F
                        Business%     Ctrl+B
                        Solver        Ctrl+S
                        List Stat     Ctrl+L
                        Conversions   Ctrl+O
                        Math          Ctrl+M
                        Custom        Ctrl+U
                        Date Calcs    Ctrl+D
                        Arithmetic    Ctrl+A
```
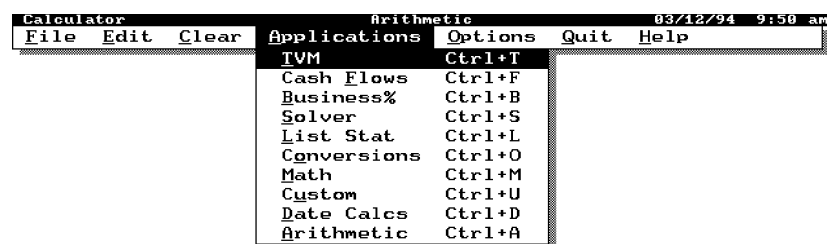
The rest of this chapter describes many of the basic features of the Calculator as well as the technical math functions available

in the Math application.

Simple arithmetic

Here is an example of simple arithmetic in the Calculator using algebraic syntax. Notice how ⌀=⌀ completes the calculation.

Keys: **Description:**

[+/x÷] Starts the Calculator.

54.69 [+] 28.33 [=]   Adds 54.69 to 28.33 and displays 83.02 in the calc line.

[*] 6 [-] 200 [=] Multiplies the previous result by 6, subtracts 200 from that result, and displays 298.12 in the calc line.

About the calc line

```
Calculator              Math Functions        11/15/93  7:08 am




                                 Stack:     T =      0.00
                                            Z =      0.00
                                            Y =      0.00
 ■ RPN ━━━━ RAD ━━━━━━━━ STO ■
                                                     0.00
  Help │ RND │ IP │  FP  │ ABS │ LN │ E^X │ LOG │ 10^X │ More
```
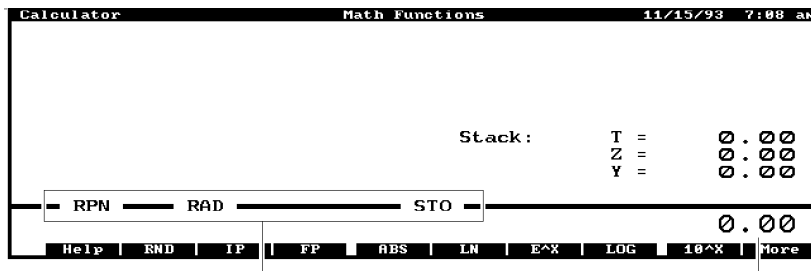
Annunciators display above the calc line.   Calc line.

The calc line
This is where you enter numbers and see results. You can do arithmetic whenever the calc line is present in any of the Calculator applications.

The annunciator area
The top part of the box surrounding the calc line is the area the Calculator uses to display **annunciators**—symbols that tell you when the Calculator is in a special state or mode.

The **ALG/RPN annunciator** describes how the palmtop expects you to enter calculations—either in algebraic syntax (the default) or in Reverse Polish Notation.

The **RAD/GRAD annunciator** tells you how angles are interpreted: radians (RAD), grads (GRAD), or degrees (no annunciator). This annunciator displays only in the math screen and the Solver.

The **STO/RCL annunciator** turns on when you're storing or recalling the contents of registers.

The **Popul/Sample annunciator** tells you which model is used to calculate the statistics in the List Stat application.

The **1-Var/2-Var annunciator** indicates the number of columns for statistics data entry in the List Stat application.

Chapter 20 tells you how to set or change modes of operation.

To clear the calc line:

Press [DEL]. Use [←] to delete only the rightmost number, character, or operator.

To enter a negative number:

Type the number and press [+/-] (the [L] key).

To view displayed numbers to their full precision:

Press [FN] *ZOOM.*

Press [ESC] *to continue.*

The calculator keyboard

The Calculator uses primarily three areas of the keyboard:

Function keys

Calculator keys   Numeric keyboard
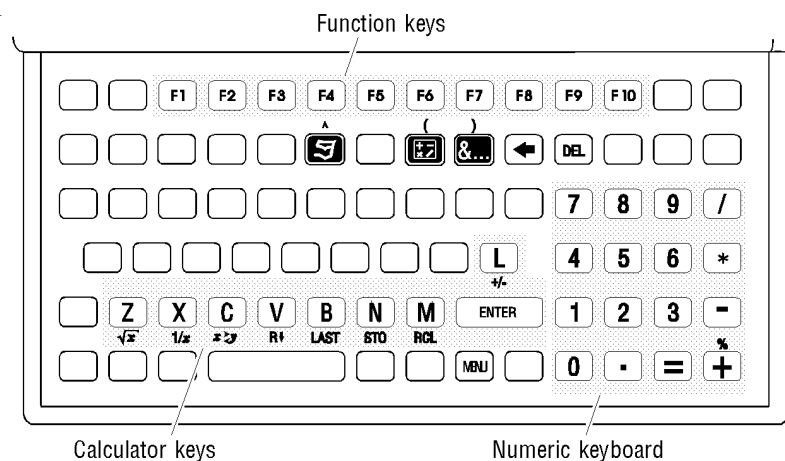
About the special calculator keys
Most of the time the alpha keys are not active within the Cal-
culator. The Calculator takes advantage of this by redefining
the bottom row of alpha keys ($\boxed{Z}$, $\boxed{X}$, $\boxed{C}$, etc.) along with the
$\boxed{L}$ key to give you a set of special Calculator keys. The
Calculator definitions are printed just below the corresponding
keys—$\boxed{Z}$ becomes $\boxed{\sqrt{x}}$, $\boxed{X}$ becomes $\boxed{1/X}$, etc.

$\sqrt{x}$Key Description

$\boxed{\sqrt{x}}$	Calculates the square root of the number in the calc line.
$\boxed{1/X}$	Calculates the reciprocal of the number in the calc line.
$\boxed{x \gtrless y}$	If the calc line contains a number, exchanges that number with the result of the previous calculation. If the calc line contains two numbers separated by an operator, swaps the order of the numbers (for example, 3/4 changes to 4/3).
$\boxed{\blacksquare}$	Rolls down the history stack.
$\boxed{LAST}$	Copies the result of the previous calculation into the current calculation.
$\boxed{STO}$	Copies a number from the calc line into the designated

register or variable.

[RCL]   Recalls the number from the designated register or variable.

[+/-]   Makes a positive number negative or a negative number positive. For example, pressing [+/-] with the number 118 in the calc line changes it to -118. Pressing it a second time makes the number positive again.

▪Operator priority

When you string calculations together, the palmtop uses a system of operator priority to evaluate expressions:

Operator	Priority
[^]	*First*
[∗] *and* [/]	*Second*
[+] *and* [-]	*Third*

The Calculator calculates an intermediate result when the next operator you enter has a lower or equal priority. When the next operator has higher priority, the Calculator retains the previous numbers. For example, in the calculation 9 [+] 12 [/] 3 [=], division has a higher priority than addition. Thus, the 9 and [+] are retained as a pending operation until the division is completed.

Example. Calculate 4 x 7^3 plus 5 x 7^2 plus 6.

Keys:	Description:
[+ ÷ / x]	Starts the Calculator.
4 [∗] 7 [^]	^ has a higher priority than ∗. [^] is the shifted [⇲] key.
3 [+]	Calculates 4 x 7^3, and the calc line shows 1,372.00+.
5 [∗]	∗ has a higher priority than +.
7 [^]	^ has a higher priority than ∗.
2 [+]	Adds 5 x 7^2 to 1,372.
6 [=]	Completes the calculation and displays 1,623.00.

If a calculation requires that operations be done in an order inconsistent with operator priority (for example, addition

before multiplication), use parentheses. You can have a maximum of eight pending operations.

Percent

In most cases, ⬚%⬚ (the shifted ⬚+⬚ key) divides the number furthest to the right in the calc line by 100. The exception is when a plus or minus sign precedes the number. Then, the ⬚%⬚ key uses the rightmost number as a percent, and calculates that percent of the number preceding the plus or minus sign.

Example: Percentages. Find 27% of 85.3.

Keys:	Description:
⬚+/x⬚	Starts the Calculator.
85.3 ⬚*⬚ 27 ⬚%⬚	Divides 27 by 100.
⬚=⬚	Calculates 27% of 85.3 and displays 23.03.

Example: Calculating Simple Interest. You borrow $1,250 from a relative, and agree to repay the loan in a year with 7% simple interest. How much money will you owe?

Keys:	Description:
1250 ⬚+⬚ 7 ⬚%⬚	Interest on the loan (7% of $1250) is $87.50.
⬚=⬚	Displays 1,337.50, the total amount you must repay at the end of 1 year.

Other keyboard arithmetic

Examples. The other keyboard arithmetic keys are ⬚√x⬚ (the ⬚Z⬚ key), ⬚1/X⬚ (the ⬚X⬚ key), and ⬚^⬚ (the shifted ⬚ẞ⬚ key). They

act on the number furthest to the right in the calc line.

Keys: **Description:**

[+ −/x /]   Starts the Calculator.

4 [1/X]   Calculates the reciprocal of 4 to be 0.25.

20 [√x]   Calculates the square root of 20 to be 4.47.

1.1 [^] 2 [=] Calculates 1.1^2 to be 1.21.

The [1/X] function is useful for calculating the root of a number.

125 [^] 3 [1/X]   Calculates and displays 125.00^0.33.

[=]   Calculates the cube root of 125 to be 5.00.

Using the automatic constant in calculations

An **automatic constant** is an operator (+, -, ∗, /, or ^) and a number or percentage that can be used for repetitive calculations. To initiate an automatic constant, press an operator twice followed by a number or percentage. Once initiated, the constant is displayed to the right of the calc line in brackets, for example [+5%].

Example. Calculate 128x3.2, 219x3.2, and 316x3.2.

Keys: **Description:**

[+ −/x /]   Starts the Calculator.

128 [∗] [∗] 3.2 [=]   Stores ∗3.2 as a constant and multiplies 128 by 3.2. The result and constant are displayed: 409.60 [∗3.20].

219 [=]   Multiplies 219 by 3.2 and displays 700.80 [∗3.20].

316 [=]   Multiplies 316 by 3.2 and displays 1,011.20 [∗3.20].

Example. Calculate 10 + 10%, 11 + 10%, and 25 +10%.

Keys: **Description:**

10 [+] [+] 10 [%] [=]   Stores +10% as a constant and adds 10% to 10. The result and constant are displayed: 11.00 [+10.00%].

[=]   Adds 10% to 11 and displays 12.10 [+10.00%].

25 [=]   Adds 10% to 25 and displays 27.50 [+10.00%].

The K abbreviation

If the constant causes the contents of the calc line to become too long, the constant is abbreviated as K, as in [+K%]. Clearing the constant Pressing ⌈DEL⌉ clears the constant and the result from the calc line. Pressing another operator key or ⌈←⌉ clears just the constant and leaves the result.

Storing and recalling numbers

You can store and recall numbers using the history stack and using registers.

Using the history stack

The **history stack** is a four-level record of activities within the Calculator. It includes the calc line and three levels "above" the calc line. When you start a new operation on the calc line, the previous contents move up to level 1, bumping level 1 contents to level 2, level 2 to level 3, and level 3 off the stack. Numbers are lost when bumped off the stack.
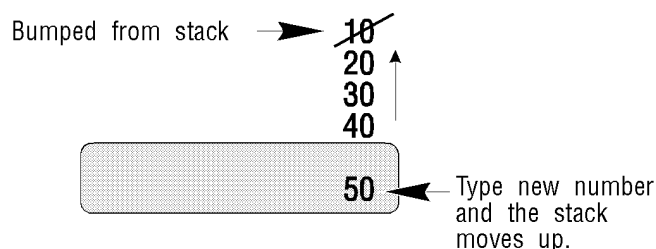
The history stack is shared by all Calculator applications, and if you clear the stack (by pressing ⌈MENU⌉ ⌈C⌉ ⌈S⌉), the numbers change to 0's. The current state of the stack is always displayed in the Calculator Math application. You can also set it to be viewed in Arithmetic and Custom—press ⌈MENU⌉ ⌈O⌉ ⌈M⌉ and select Show Stack.

The ⌈⏷⌉ key (⌈V⌉ when the Calculator is active) "rolls" the history stack down one line. For example, pressing ⌈⏷⌉ once with the above stack moves 50.00 to the top of the stack

(level 3) and rolls the other numbers down one level, putting 40.00 in the calc line. Pressing [⬇] four times cycles through the entire stack.

The [x≷y] key ([C] when the calculator is active) normally swaps a number in the calc line with the number in stack level 1. For example, if your stack looks like the one in the previous illustration, pressing [x≷y] puts 40.00 in the calc line and moves 50.00 to level 1. The exception to this rule is when you have an incomplete calculation in the calc line. Then, [x≷y] swaps the two operands. For example, pressing [x≷y] changes 2.00/3.00 in the calc line to 3.00/2.00.

The [LAST] key ([B] when the Calculator is active) copies the number in level 1 of the history stack into a calculation you are in the process of doing.

Using registers

The Calculator has 10 **registers** (storage locations), numbered 0 through 9, that can be used to store and recall numbers.

Viewing Registers

The current values in the registers can be viewed in the Arithmetic and Custom applications: Press [MENU] [O] [M] and select Show Registers.

Using [STO] **and** [RCL]

To store or recall a number, press [STO] ([N] when the Calculator is active) or [RCL] ([M] when the Calculator is active), followed by a number in the range 0 through 9. [STO] copies the number from the calc line to a designated register. If there is more than one number in the calc line, [STO] copies *only the rightmost number*. [RCL] recalls the stored number back to the calc line.

To cancel the store or recall after you've pressed [STO] or [RCL], press [ESC] or [←].

[STO] and [RCL] can also be used with variables. For example, pressing [STO] **PMT** (the payment function-key in TVM) stores the rightmost number in the calc line into the variable *PMT*. Pressing [RCL] **PMT** copies the contents of *PMT* into the calc line.

Doing Arithmetic inside Registers

The Calculator lets you do arithmetic on numbers that are stored *inside* registers regardless of which Calculator application you are in.

Example: Register Arithmetic. Store 45.7 in register 3, multiply that number by 2.5, and store the result back in register 3.

Keys	**Description**
45.7 [STO] 3	Stores 45.7 into register 3.
2.5 [STO] [*] 3	Stores 114.25 (45.7 x 2.5) into register 3.
[RCL] 3	Displays the contents of register 3.

The following table shows the options for arithmetic inside registers:

Keys	**New Number in Register**
[STO] [+]	old number in register + number in calc line
[STO] [-]	old number in register - number in calc line
[STO] [*]	old number in register x number in calc line
[STO] [/]	old number in register ÷ number in calc line

You can also do arithmetic on numbers stored in variables. For example, 2 [STO] [*] **PMT** multiplies the current contents of *PMT* by 2 and stores the product in *PMT*.

Using the M Register

Register 0 (the M register) is a special register that has its own set of "shortcut" memory keys. You can use the [STO] key-combinations and [RCL] with register 0 just like you would with the rest of the registers, or you can use the four function keys ([F7] through [F10]) that are present whenever you're in the

Arithmetic application. These keys do storage operations on register 0 with a minimum of keystrokes.

M Register Keys in the Arithmetic Application

Keys	Description
→M ([F7])	Stores the value in the calc line into register 0. (Same as [STO] 0.)
RM ([F8])	Recalls the contents of register 0 to the calc line. (Same as [RCL] 0.)
M+ ([F9])	Adds the value in the calc line to the old value in register 0 and stores the sum in register 0. (Same as [STO] [+] 0.)
M ([F10])	Subtracts the value in the calc line from the old value in register 0 and stores the difference in register 0. (Same as [STO] [-] 0.)

→Moving values between the calc line and 1-2-3

If you're using the Calculator while you have an open 1-2-3 worksheet, you have the ability to copy values from the calc line to a 1-2-3 cell and from a 1-2-3 cell to the calc line. Any numbers copied into 1-2-3 this way are treated as values by 1-2-3. If you use the Clipboard to move a number to 1-2-3, it is interpreted by 1-2-3 as a label.

To copy the rightmost number in the calc line to a 1-2-3 cell:

Press [STO] [SPACEBAR] from the Calculator. The open 1-2-3 worksheet is displayed.
Move the cell pointer to the cell you want to receive the number.
Press [ENTER]. The number from the calc line is copied to the highlighted cell, and you're returned to the Calculator.

To copy a number in a 1-2-3 cell to the calc line:

Press RCL SPACEBAR *from the Calculator. The open 1-2-3 worksheet is displayed.*
Move the cell pointer to the cell with the value you want to copy.
Press ENTER. *The number in the highlighted cell is copied to the calc line.*

If in step 2 you selected an empty cell or a cell with a label, 0.00 is returned to the calc line.

The point-and-shoot method of data entry

Most of the examples in the Calculator part of this manual demonstrate entering data using the function keys that correspond to the variables on the screen. An alternate method for data entry involves highlighting a variable on the screen using the arrow keys, typing a number, and then pressing ▲, ▼, or ENTER. Then, once you've entered all the necessary data, you can highlight the variable to solve for and press the spacebar to return the answer.

This "point-and-shoot" method is available throughout the Calculator whenever a list of variables is displayed.

Example: Using Point-and-Shoot to Calculate a Mortgage Payment. The owner of Bunsen's Burner, a local Cajun food restaurant, has taken out a 30-year (360-month) mortgage on his eatery. The amount is $200,000 at 10% annual interest. Calculate his monthly payment.

Keys:	Description:
$+\atop{x}$ MENU A T	Selects the TVM application.
MENU C D	Clears any prior TVM data.
▼	Highlights the *N* variable.
360 ▼	Enters the number of payments and highlights *I%YR*.
10 ▼	Enters the interest rate.

| 200000 [▼] | Enters the amount of the mortgage. |
| [SPACEBAR] | Calculates the monthly payment. |

```
Calculator              Time Value of Money - case 1        11/15/93  7:14 am

   Number of periods.................. N    =           360.00
   Annual interest.................... I%YR =            10.00
   Present value...................... PV   =       200,000.00
   Payment............................ PMT  =        -1,755.14
   Future value....................... FV   =             0.00

   Payments per year.................. P/YR =               12
   Begin/End mode..................... B/E  =              END


                                        PMT  =  -1,755.14
      Help  | Amort | Iconv |  B/E  | P/YR  |   N   | I%YR  |  PV   |  PMT  |  FV
```

Clearing information from calculator memory

To clear the data associated with the current Calculator application, press [MENU] [C] [D]. For example, if you're in the TVM application, pressing [MENU] [C] [D] clears all your TVM data.

To clear the calc line, press [MENU] [C] [C].

To clear the history stack, press [MENU] [C] [S].

To clear the storage registers, press [MENU] [C] [R].

Pressing [DEL] is another way to clear just the calc line.

Using RPN with the calculator

If you're an experienced RPN user, you may want to configure the Calculator to operate in RPN mode—press [MENU] [O] [M] and then select RPN in the Operation Mode box.

When the Calculator is in RPN mode, the RPN annunciator is displayed at the left side of the calc line.

Reverse Polish Notation (RPN) is based on an unambiguous, parentheses-free mathematical logic known as "Polish Notation," developed by the Polish logician Jan
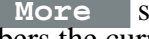
Lukasiewicz (1878–1956). While conventional algebraic notation places the operators *between* the relevant numbers or variables, Lukasiewicz's notation places them *before* the numbers or variables. For optimal efficiency of the stack, we modified that notation to specify the operators *after* the numbers. Hence the term *Reverse Polish Notation*, or *RPN*. There are several easy-to-follow books designed to explain RPN to the beginner. One such book is book ENTER by Jean-Daniel Dodin. It's available at the time of this writing from:

> **EduCALC**
> **27693 Cabot Road**
> **Laguna Niguel, CA 92677 USA**
>
> **Telephone: 800 677-7001 (Credit card orders only)**

Technical math functions

Press $\boxed{^{+\,-}_{x\,/}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{M}}$ to start the Calculator Math application, which gives you function key labels at the bottom of the display for the technical math functions. As a shortcut from anywhere else in the Calculator, you can press $\boxed{\text{CTRL}}$ + $\boxed{\text{M}}$ to get to the Math application.
There are four sets or **pages** of function keys—pressing $\boxed{\textbf{More}}$ ($\boxed{\text{F10}}$) shows you the next page, and pressing $\boxed{\text{⇧}}$ $\boxed{\textbf{More}}$ shows you the previous page. The Calculator remembers the current page when you leave the math functions

screen so that it is displayed again when you return.

```
Calculator                    Math Functions              11/16/93  2:51 PM



                                        Stack:    (3) =        0.00
                                                  (2) =        0.00
                                                  (1) =       11.83

                                                             0.00
      Help │  RND  │  IP  │  FP  │  ABS  │  LN  │  E^X  │  LOG  │  10^X  │ More
```
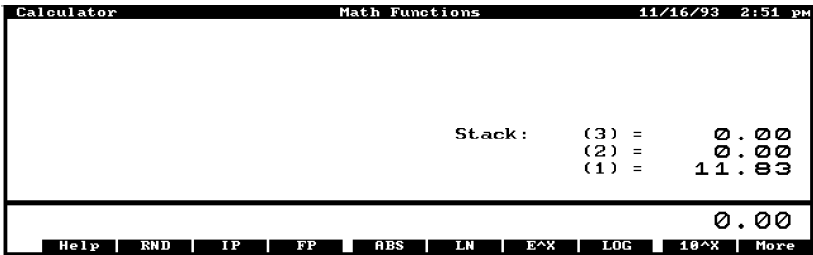
Pressing More (F10) brings up
another "page" of math functions.

Unless noted otherwise in the following tables, the technical
math functions operate on the rightmost real number in the calc
line.

Page 1 Set of Math Functions
Key Label Function

RND	Rounds number to number of displayed decimal places. Before rounding, the stored version of the number may have additional non-zero digits that are not displayed.
IP	Integer part of real number in calc line.
FP	Fractional part of real number in calc line.
ABS	Absolute value of real number in calc line.
LN	Natural (base e) logarithm of a positive number.
E^X	Natural antilogarithm; e^x.
LOG	Common (base 10) logarithm of a positive number.
10^X	Common (base 10) antilogarithm; 10^x.

Example: Rounding a Number. This example assumes numbers
are displayed to two decimal places.

Keys: Description:

[x/] [MENU] [A] [M]   Selects the Calculator Math application. You may need to press **More** to see the function key used in this example.

4.589 [+] 2.6891 [=]   Calculates 7.2781. The result is

displayed to two decimal places-—7.28—
but the entire number is in memory and is
used in any further calculations.

RND	Rounds the number to 7.28. (7.2781 is no longer in Calculator memory.)

Example: Logarithmic Functions. Find the natural log of 47.5.

Keys: **Description:**

⌈+7⌉ ⌈MENU⌉ ⌈A⌉ ⌈M⌉	Selects the Calculator Math application. You may need to press **More** to see the function keys used in this example.
47.5 **LN**	Natural log of 47.5 is 3.86.
E^X	Natural antilogarithm of 3.86 is 47.50.

Page 2 Set of Math Functions

Key Label	Function	Key Label	Function
PI	π (3.14159265359)		
		ASIN	arc sine
SIN	sine	**ACOS**	arc cosine
COS	cosine	**ATAN**	arc tangent
TAN	tangent		

Changing the angle mode

The trigonometric functions in the previous table (except
for π), and the polar/rectangular-coordinate conversion
functions in the next table, interpret angles in degrees, radians,
or grads, depending on the angle mode. The Annunciators at
the top-left part of the calc line indicate the mode—the RAD
annunciator indicates Radians mode, the GRAD annunciator
indicates Grads mode, and no annunciator indicates Degrees
mode.

To change the angle mode, press ⌈+7⌉ ⌈MENU⌉ ⌈O⌉ ⌈M⌉ and then
select the desired angle mode.

Example: Trigonometric Functions. This example assumes the

angle mode is set to Degrees.

Keys: **Description:**

$\boxed{\overset{+}{x}\overset{-}{/}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{M}}$ Selects the Calculator Math application. You may need to press `More` to see the function keys used in this example.

15 `SIN` Sine of 15° is `0.26`.

2.73 `ATAN` Arc tangent of 2.73 is `69.88`.

Page 3 Set of Math Functions

Key Label	Function
`→DEG`	*To degrees*; converts the number from a radian value to its decimal degree equivalent.
`→RAD`	*To radians*; converts the number from a decimal degree value to its radian equivalent.
`→HR`	*To hours*; converts the number from hours(degrees)-minutes-seconds-decimal seconds format (H.MMSSss or D.MMSSss) to decimal hours (or degrees) format.
`→HMS`	*To hours-minutes-seconds*; converts the number from decimal hours (or degrees) to hours(degrees)-minutes-seconds-decimal seconds format (H.MMSSss or D.MMSSss).
`XCOORD`	Stores the *x*-coordinate or calculates the *x*- and *y*-coordinates.
`YCOORD`	Stores the *y*-coordinate or calculates the *x*- and *y*-coordinates.
`RADIUS`	Stores the radius or calculates the radius and angle.
`ANGLE`	Stores the angle or calculates the radius and angle.

→**Example: Angle and Hour Conversions.** In this example you may have to press `More` ($\boxed{\text{F10}}$) after you start the Math application to get to the `PI` function key.

Keys: **Description:**

$\boxed{\overset{+}{x}\overset{-}{/}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{M}}$ Selects the Calculator Math application.

1.79 $\boxed{*}$ `PI` $\boxed{=}$ Calculates 1.79π to be `5.62`.

`More` `→DEG`   Converts 5.62 radians to `322.20` degrees.

90.2015 `→HR` Converts 90 degrees, 20 minutes, 15 seconds to `90.34` decimal degrees.

Example: Coordinate Conversions. Convert the rectangular

coordinates (10,-15) to polar coordinates. This example assumes the angle mode is set to Degrees.

Keys: **Description:**

$\boxed{\substack{+\,-\\x\,/}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{M}}$ Selects the Calculator Math application. You may need to press **More** to see the function keys used in this example.

10 **XCOORD**   Stores the *x*-coordinate.

15 $\boxed{+/-}$ **YCOORD**   Stores the *y*-coordinate.

RADIUS   Calculates the radius and angle and displays RADIUS = 18.03.

Key LabelFunction

X	Stores *x* for calculating combinations and permutations.
Y	Stores *y* for calculating combinations and permutations.
Cx,y	Combinations; calculates the number of different *sets* containing *y* items that can be taken from a larger group of *x* items. Different orders of the same *y* items are not counted separately.
Px,y	Permutations; calculates the number of different *arrangements* of *y* items that can be taken from a larger group of *x* items. Different orders of the same *y* items are counted separately.
N!	Calculates the factorial of the rightmost number in the calc line.
SEED	Stores a seed for the random number generator. A **seed** is a number that initiates the sequence of random numbers. Pressing 0 **SEED** uses a new seed from the system clock. To specify a particular seed, key in a non-zero number and press **SEED**. You can repeat a random number sequence by storing the same non-zero seed.
RAN#	Displays a random number between 0 and 1. All random numbers have 12 significant digits.

Example: Probability Functions. Calculate combinations and permutations.

Keys:	Description:
⌈+⌉ ⌊MENU⌋ ⌊A⌋ ⌊M⌋	Selects the Calculator Math application. You may need to press **More** to see the function keys used in this example.
5 **X**	Stores *x*.
3 **Y**	Stores *y*.
Cx,y	Calculates combinations: Cx,y = 10.00.
Px,y	Calculates permutations: Px,y = 60.00.

13
Business percentage calculations

To start the Calculator Business% application press $\boxed{^+_\times{}^-_\div}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{B}}$. Or, as a shortcut from anywhere within the Calculator, press $\boxed{\text{CTRL}}+\boxed{\text{B}}$. Business% has two screens: one for calculating percent change and percent of total, and one for calculating markup and margin. Press $\boxed{\quad\textbf{More}\quad}$ ($\boxed{\text{F10}}$) to switch between the two screens:

```
Calculator              Business Percentages        11/15/93  7:22 am

  Old value........................ OLD    =   110,000.00
  New value........................ NEW    =   115,000.00
  Percent change................... %CHG   =        12.00


  Total amount..................... TOTAL  =   675,840.00
  Part of total.................... PART   =   234,576.00
  Percent of total................. %TOTAL =        34.71


                                       %CHG  =  12.00
   Help         OLD   NEW   %CHG       TOTAL  PART  %TOTAL  More
```

Percent Change and Percent of Total

```
Calculator              Business Percentages        11/15/93  7:23 am

  Cost................................... COST   =    49.00
  Price.................................. PRICE  =    78.40


  Mark up............................... MARKUP =    60.00
  Margin................................ MARGIN =    37.50


                                       PRICE  =  78.40
   Help                        COST  PRICE  MARKUP  MARGIN  More
```

Markup and Margin

To calculate percent change:

The percent change function keys are `OLD` (F3),
`NE` (F4), and `%CHG` (F5). Percent change is
expressed as a percentage of the *OLD* number.
Display the percent change screen.
Type the old number and press F3*, and type the new number and press* F4*.*
Press F5 *to return the percent change to the calc line.*

To calculate percent of total:

The percent of total function keys are `TOTAL` (F7),
`PART` (F8), and `%TOTAL` (F9).
Display the percent change screen.
Type the total and press F7*, and type the part and press* F8*.*
Press F9 *to return the percent of total to the calc line.*

To calculate markup and margin:

Markup calculations are expressed as a percent of *cost*.
Margin is markup expressed as a percent of *price*.
Display the markup and margin screen.
Type the cost and press F6*, and type the price and press* F7*.*
Press F8 *or* F9 *to return the markup or margin to the calc line.*

For the percent and markup/margin calculations you can
actually calculate any unknown variable as long as the others
are known. For example, you can calculate selling price by
entering the known cost and desired markup or margin and then
pressing `PRICE` (F7). Similarly, if you know the percent
change and the new number, you can calculate the old number.

14
Time value of money and interest conversions

The time-value-of-money (TVM) application enables you to do compound-interest, amortization, and interest-rate-conversion calculations. You can use TVM to solve virtually any financial problem involving a series of cash flows (money received or money paid) that meets these criteria:

The dollar amount is the same for each payment.

The payments occur at regular intervals.

Payment periods coincide with the compounding periods.

For uneven or irregular cash flow problems, see chapter 15, *Uneven cash flow calculations.*

The TVM screen

Press $\boxed{^+_\times{}^-_/}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{T}}$ to start TVM.

```
Calculator          Time Value of Money - case 1      11/15/93  7:26 am

Number of periods.......................... N    =       0.00
Annual interest............................ I%YR =       0.00
Present value.............................. PV   =       0.00
Payment.................................... PMT  =       0.00
Future value............................... FV   =       0.00

Payments per year.......................... P/YR =         12
Begin/End mode............................. B/E  =        END

                                                         0.00
   Help | Amort | Iconv |  B/E  | P/YR |  N  | I%YR |  PV  |  PMT  |  FV
```

Key LabelDescription

A ort	Brings up the amortization screen and function keys (see *Calculating amortization* later in this chapter).
Iconv	Brings up the interest conversion screen and function keys (see *Calculating interest rate conversions* later in this chapter).
B/E	Switches the payment mode between BEGIN (for payments made at the beginning of periods) and END (for payments made at the end of periods).
P/YR	Stores the number of payments or compounding periods per year. The value must be an integer in the range 1 through 999.
N	Stores or calculates the total number of payments (or compounding periods). *N* can be expressed in any unit of time—for example, days, months, or years. ⬆ **N** multiplies the number in the calc line by *P/YR* and stores the result in *N*. For example, if *P/YR* is 12, pressing 30 ⬆ **N** stores 360 in *N*.
I%YR	Stores or calculates the nominal *annual* interest rate as a percentage.
PV	Stores or calculates the present value of a series of future cash flows. To a lender or borrower, *PV* is the amount of the loan; to an investor, *PV* is the initial investment. *PV* always occurs at the beginning of the first period.

PMT	Stores or calculates the amount of each periodic payment. The payments are the same amount, and no payments are skipped. Payments can occur at the beginning or end of each period.
FV	Stores or calculates the future value—the amount of the final cash flow, or the compounded value of the series of previous cash flows. *FV* always occurs at the end of the last period.

The **A ort** (amortization) and **Iconv** (interest rate conversion) function keys bring up other screens with their own function keys. If the amortization or interest conversion screen is displayed when you start TVM, you can press ESC to get back to the main TVM screen.

Switching TVM cases

The Calculator lets you keep two different sets of TVM variables in memory, cases 1 and 2. To switch cases, press ▶ or ◀—the case number at the top of the screen and the values in the variables change.

Clearing TVM variables

The Calculator retains the values stored in the TVM variables until they are changed or cleared. To clear the variables for the displayed TVM case—the other case is not affected—press MENU C D. This clears *N, I%YR, PV, PMT,* and *FV* to 0, sets *P/YR* to 12, and sets End mode.

Making TVM calculations

To make TVM calculations, follow this general procedure:

Press ⌈↑↓⌉ MENU A T to start TVM.
If necessary, press ESC to display the main TVM screen.
Check and set these TVM conditions:

 Number of payments per year (use **P/YR**).
 Payments at beginning or end of periods (use **B/E**).

Enter values for the four known TVM variables.
Find the unknown value.

Conventions for entering TVM values

Cash flows are either positive or negative, depending on your perspective. A loan is a *positive* cash flow (money coming in) to the borrower and a *negative* cash flow (money going out) to the lender. Money deposited in a savings account is a negative cash flow for the investor and a positive cash flow for the bank. Keep in mind as you enter values and view results that money flowing to you is a positive number and money flowing from you is a negative number. Use ⎡+/-⎤ to change the sign.

Also, make sure the timing of payment—at the beginning of each period or at the end of each period—is set properly for your problem (END is the default). Use ▐ **B/E** ▐ to switch the payment mode.

The next few pages contain a series of TVM examples. Also, see *Additional TVM examples* at the end of this chapter.

Example: A Car Loan. Otto Tailfin is financing the purchase of a car with a 3-year loan at 10.5% annual interest, compounded monthly. The purchase price of the car is $11,250, and his down payment is $2500. What are his monthly payments? Assume that payments start at the end of the first period.

Keys:	Description:
⎡⁺ₓ7⎤ ⎡MENU⎤ ⎡A⎤ ⎡T⎤	Starts the TVM application.
⎡MENU⎤ ⎡C⎤ ⎡D⎤	Clears any prior TVM data.
3 ⎡⇧⎤ ⎡F6⎤	Enters the total number of monthly payments.
10.5 ⎡F7⎤	Enters the annual interest rate.
11250 ⎡−⎤ 2500 ⎡F8⎤	Enters the amount of the loan as the present value.
0 ⎡F10⎤	Enters 0 as the future value because the loan will be completely paid off at the end of 3 years. This step is really not necessary because *FV* was set to 0 when the data was

cleared above.

[F9]	Calculates a monthly payment of $284.40.

Example: A Mortgage with a Balloon Payment. Russ T. Pipes has taken out a 25-year, $75,250 house mortgage at 13.8% annual interest. He expects to sell the house in 4 years, repaying the loan in a balloon payment. Find the size of the balloon payment—the value of the mortgage after 4 years of payments.

Keys: **Description:**

Keys:	Description:
[± x⁷] [MENU] [A] [T]	Starts the TVM application.
[MENU] [C] [D]	Clears any prior TVM data.
25 [⬆] [F6]	Enters 300 as the total number of monthly payments.
13.8 [F7]	Enters the annual interest rate.
75250 [F8]	Enters the amount of the mortgage as the present value.
0 [F10]	Enters 0 as the future value.
[F9]	Calculates the monthly payment of $894.33.
894.33 [+/-] [F9]	Stores the actual dollars-and-cents payment, which is the computed payment rounded to 2 decimal places. Otherwise, *PMT* would have fractional cents as previously calculated.
4 [⬆] [F6]	Enters the number of payments in 4 years.
[F10]	Calculates the balloon to be $73,408.81.

Example: A Savings Account. Penny Horder deposits $2000 into a savings account that pays 7.2% annual interest, compounded annually. If she makes no other deposits into the account, how long does it take for the account to contain $3000?

Keys:	Description:
$\boxed{\frac{+7}{x\,7}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{T}}$	Starts the TVM application.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior TVM data.
1 $\boxed{\text{F5}}$	Sets 1 compounding period per year.
7.2 $\boxed{\text{F7}}$	Enters the annual interest rate.
2000 $\boxed{+/-}$ $\boxed{\text{F8}}$	Enters the amount of the deposit.
3000 $\boxed{\text{F10}}$	Enters the future value.
$\boxed{\text{F6}}$	Calculates 5.83 years.

Since the calculated value of *N* is between 5 and 6, it will take 6 years of annual compounding to achieve a balance of at least $3,000. The actual balance at the end of 6 years can be calculated:

6 $\boxed{\text{F6}}$	Enters 6 as *N*.
$\boxed{\text{F10}}$	Calculates the balance to be $3,035.28 after 6 years.

Example: A Lease. Sandy Lome is leasing farm equipment for 4 years. The monthly payment of $2400 is due today. An additional $2400 payment at the beginning of the leasing period replaces the final payment. The leasing agreement includes an option to buy the equipment for $15,000 at the end of the leasing period. Calculate the capitalized value of the lease, assuming that the interest rate Lome pays to borrow funds is 18%, compounded monthly.
Make the calculation in four steps:

Calculate the present value for the 47 monthly payments—the initial investment required to make the monthly payments.
Add the advance payment to the result of step 1.
Calculate the present value of the buy option—the initial investment required to generate the option price after 48 months.
Add the values calculated in steps 2 and 3.

Step 1
Calculate the present value of the monthly payments.

Keys:	Description:
$\boxed{{}^{+}_{x}7}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{T}}$	Starts the TVM application.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior TVM data.
$\boxed{\text{F4}}$	Set payments at the beginning of the periods.
47 $\boxed{\text{F6}}$	Enters the number of payments.
18 $\boxed{\text{F7}}$	Enters the annual interest rate.
2400 $\boxed{+/-}$ $\boxed{\text{F9}}$	Enters the monthly payment.
$\boxed{\text{F8}}$	Calculates the present (capitalized) value of the 47 monthly payments to be $81,735.58.

Step 2

Add the additional advance payment to *PV* and store the answer.

$\boxed{+}$ 2400 $\boxed{=}$	Adds the advance payment to *PV*.
$\boxed{\text{STO}}$ 1	Stores 84,135.58 in register 1.

Step 3

Find the present value of the buy option.

48 $\boxed{\text{F6}}$	Enters the number of periods.
15000 $\boxed{+/-}$ $\boxed{\text{F10}}$	Enters the amount of buy option.
0 $\boxed{\text{F9}}$	Clears *PMT*.
$\boxed{\text{F8}}$	Calculates the present value of the buy option to be $7,340.43.

Step 4

Add the results of steps 2 and 3.

$\boxed{+}$ $\boxed{\text{RCL}}$ 1 $\boxed{=}$	Calculates $91,476.00 to be the present (capitalized) value of the lease.

Calculating amortization

Amortization calculations determine the amounts applied toward principal and interest in a payment or series of payments. When you're in TVM and press **A ort** ($\boxed{\text{F2}}$), you get the amortization function keys:

Key Label	Description
GO	Calculates the amortization for a group of payments. If you enter a number in the calc line and then press **GO**, that number is used as the number of payments in the group; if you press **GO** without entering a number, the current number of payments per year (*P/YR*) is used, which is 12 unless you change it.
⇧ **GO**	Calculates the amortization for a number of groups, specified by the number you type in the calc line.
Adjust	Displays the amortization adjustment screen and function keys.
I%YR'	Stores or calculates a new interest rate or returns the current interest rate to the calc line.
PMT'	Stores or calculates a new payment amount or returns the current payment to the calc line.
BAL	Returns the amount of the remaining balance of the loan to the calc line. Pressing [STO] **BAL** stores a new balance.
INT	Returns the amount of the payments applied toward interest to the calc line.
ACCUM	Returns the amount of accumulated interest since the start of the amortization (period 0) to the calc line.
PRIN	Returns the amount of the payments applied toward principal to the calc line.
1-2-3	Specifies the current 1-2-3 worksheet as the

destination for the amortization table. When an amortization table is generated, it is sent to the 1-2-3 worksheet starting at the current cell. This feature works only when a 1-2-3 worksheet is currently loaded.

To make amortization calculations:

Start TVM by pressing `MENU` `A` `T`.

Check that these TVM conditions are set:

Number of payments per year.

Payments at beginning or end of periods.

Store values for three TVM variables: I%YR, PV, and PMT. These variables define the payment schedule. For an adjustable rate mortgage, also store the total number of payments in N.

Press `A ort` *(`F2`) to select the amortization screen.*

Do one of the following:

Simply press `GO` (`F2`) to calculate amortization for the number of periods stored in *P/YR* (default is 12).

Enter the number of payments to amortize, then press `GO` (`F2`).

For an Adjustable Rate Mortgage (ARM):

At the point in the schedule where the interest rate changes, adjust it by typing the new rate in the calc line and pressing `I%YR'` (`F4`).

Calculate the adjusted payment by pressing `PMT'` (`F5`).

Optionally press `Adjust` (`F3`) to select the amortization adjustment screen. This screen enables you to adjust other amortization variables, if necessary, for your particular problem.

Continue using `GO` (`F2`) to calculate the adjusted amortization schedule.

> *When you're finished, press `ESC` to return to the amortization screen.*

To start the amortization schedule over, press `MENU` `C` `D` to clear the data and begin again.

Amortization calculations use values of *PV*, *PMT*, and *INT* rounded to the number of decimal places specified by the current display setting. However, the stored values of *PV* and *PMT* do not change. Amortization uses all 16 digits of *I%YR*.

Pressing ⌈ESC⌉ from the amortization screen returns you to the main TVM screen.

Example: Amortization Schedule for a Home Mortgage. Part 1.
Rufus Leekin has taken out a 30-year, $65,000 mortgage at 12.5% annual interest. Calculate his monthly payment, and then calculate the first year's payments that are applied toward principal and interest.

Keys:	Description:
⌈↕x/⌉ ⌈MENU⌉ ⌈A⌉ ⌈T⌉	Starts the TVM application.
⌈MENU⌉ ⌈C⌉ ⌈D⌉	Clears any prior TVM data.
30 ⌈⇧⌉ ⌈F6⌉	Enters the number of payments.
12.5 ⌈F7⌉	Enters the annual interest rate.
65000 ⌈F8⌉	Enters the amount of the mortgage.
⌈F9⌉	Calculates $693.72 as the monthly payment.
⌈F2⌉	Selects the amortization screen.
⌈F2⌉	Calculates the amortization for the first year (12 payments).

```
Calculator          TVM Amortization - case 1        11/15/93  7:28 am
  Group    1          Payments       1  -   12
  Payments per Group:           12

  Amort interest rate................. I%YR' =         12.50
  Amort payment....................... PMT'  =       -693.72
  Remaining balance................... BAL   =     64,788.52
  Interest............................ INT   =     -8,113.16
  Accum. interest..................... ACCUM =     -8,113.16
  Principal........................... PRIN  =       -211.48

                                                     -693.72
   Help   │  Go  │Adjust│ I%YR' │ PMT' │ BAL │ INT │ ACCUM │ PRIN │ 1-2-3
```

Part 2. Calculate the loan balance after 3½ years. You've already amortized the first 12 months, so if you amortize 30 more months, you will have amortized a total of 42 months, or 3½ years.

| 30 ⌈F2⌉ | Calculates the amortization for the next 30 payments. After 3½ years, Rufus has an |

unpaid balance of $64,129.05.

Example: Adjustable Rate Mortgage. Part 1. Pete Moss took out a $100,000, 20-year ARM to purchase the building for his garden supply store. His interest rate for the first year is 8.25%. Moss expects the rate for the second year to increase to 8.75%. How would the increase affect his monthly payment for the second year?

Keys:	Description:
[↕x/] [MENU] [A] [T]	Starts the TVM application. You may need to press [ESC] to display the main TVM screen.
[MENU] [C] [D]	Clears any prior TVM data.
20 [⇧] [F6]	Enters the number of payments.
8.25 [F7]	Enters the annual interest rate.
100000 [F8]	Enters the amount of the mortgage.
[F9]	Calculates the monthly payment of $852.07.
[F2]	Selects the amortization screen.
[F2]	Calculates the amortization for the first year (12 payments). His remaining balance is $97,948.74.
8.75 [F4]	Enters the adjusted interest rate (*I%YR'*).
[F5]	Calculates the adjusted payment (*PMT'*). The number of remaining periods is updated automatically to 228.

```
 Calculator            TVM Amortization - case 1      11/15/93  7:30 aM
  Group    1           Payments      1  -   12
  Payments per Group:          12

  Amort interest rate................ I%YR' =            8.75
  Amort payment...................... PMT' =         -882.62
  Remaining balance.................. BAL  =       97,948.74
  Interest........................... INT  =       -8,173.58
  Accum. interest.................... ACCUM =      -8,173.58
  Principal.......................... PRIN =       -2,051.26
  ─────────────────────────────────────────────────────────
                                      PMT'  =      -882.62
  ▐Help ▌  Go ▌Adjust▐ I%YR'▌ PMT' ▌ BAL ▌ INT ▌ ACCUM ▐ PRIN ▌1-2-3▌
```

Moss's monthly payment would increase from $852.07 in year 1 to $882.62 in year 2.

Part 2. How much would Moss pay in interest the second year?

F2   Calculates amortization for the second year. Pete's interest total for the second year is $8,487.46.

Example: Graduated Payment Mortgage. To purchase a vacation condominium, Biff Beamer took out a 15-year, 12.5% GPM for $95,000. His monthly payment for the first 2 years is $875, after which time the payment increases to fully amortize the loan. What will the remaining balance be at the end of the 2 years? How much will Biff's payment have to increase to fully amortize the loan by the end of the original 15-year period?

Keys:	Description:
+/x MENU A T	Starts the TVM application. You may need to press ESC to display the main TVM screen.
MENU C D	Clears any prior TVM data.
15 ⇧ F6	Enters the number of payments.
12.5 F7	Enters the annual interest rate.
95000 F8	Enters the amount of the mortgage.
875 +/- F9	Enters the monthly payment during the first 2 years.
F2	Selects the amortization screen.

24 [F2]   Calculates the amortization for the first 2
                 years, showing a remaining balance of
                 $98,106.01.

[F5]   Calculates the payment required to fully
                 amortize the loan over the remaining number
                 of periods. For the last 13 years of the loan
                 Biff's monthly payment will be $1,275.15.

Note

The previous example involves negative amortization—*a case in which payments are less than accrued interest for a time, causing the principal to increase by the difference between paid and accrued interest. In negative amortization the interest amounts shown in the amortization screen reflect the accrued interest, not the interest paid. As long as the payment is less than the accrued interest for the period, you can calculate the interest paid for a group of payments by multiplying the payment amount by the number of payments in the group.*

Sending an amortization table to 1-2-3 or a printer

To print an amortization table:

From the amortization screen, press [MENU] [F] [P] [D] to turn printing on. When printing is on, a PRINT annunciator appears in the upper-right corner of the display.

Use [GO] *and* [⇧] [GO] *to generate the parts of the table you want printed.* [⇧] [GO] *is very useful here because it prints the table for the number of groups specified in the calc line. The groups are printed as they are generated.*

When you're finished printing, press [MENU] [F] [P] [D] *again to turn printing off. Leaving the amortization screen also turns off printing.*

To send an amortization table to the current 1-2-3 worksheet:

From within TVM press `A ort` (F2) then `1-2-3` (F10). The current 1-2-3 worksheet is displayed.

Move the cell pointer to the cell where you want to start receiving input and press ENTER. *Eight amortization column headings are put into the worksheet and you are returned to the amortization screen. The amortization screen now shows a* 1-2-3 *annunciator in the upper-right corner of the screen to remind you that output will be sent to 1-2-3.*

Calculate amortization as described earlier in this chapter. Each time you press `GO` *(or* ⇧ `GO`*) the results are sent to the current 1-2-3 worksheet—a row of information is sent for each group of payments calculated.*

When you no longer want the results sent to the current worksheet, press `1-2-3` *(*F10*) again. The* 1-2-3 *annunciator turns off.*

When you display the worksheet, you'll be able to see the amortization output. Here is an example of five groups sent to a worksheet:

```
A1:                                                                READY
        A        B         C        D        E       F       G        H
1
2
3
4   Group     BAL      PRIN      INT     ACCUM   #PMTS   I%YR     PMT
5        1  97948.74 -2051.26 -8173.58 -8173.58    12    8.25 -852.065
6        2  95721.71 -2227.03 -7997.81 -16171.3     12    8.25 -852.065
7        3  93303.86 -2417.85 -7806.99 -23978.3     12    8.25 -852.065
8        4  90678.81 -2625.05 -7599.79 -31578.1     12    8.25 -852.065
9        5  87828.79 -2850.02 -7374.82 -38952.9     12    8.25 -852.065
10
11
12
13
14
15
16
17
18
19
20
15-Nov-93  07:40 AM
```

The table sent to the worksheet comprises eight columns of data:

Column	Description
Group	The group number.
BAL	The remaining balance at the end of that group of payments.
PRIN	The principal paid for that group of payments.
INT	The interest paid for that group of payments.

ACCUM   The accumulated interest paid.

#PMTS   The number of payments in that group.

I%YR   The annual interest rate for that group of payments.

PMT   The periodic payment for that group.

Calculating interest rate conversions

Interest rates are generally stated as *nominal annual interest rates*. A nominal annual interest rate is an annual rate that is compounded *periodically*—for example, 18% per year, compounded monthly (12 times per year). When investments have different compounding periods, *effective interest rates* are used to compare them. The effective rate is the annual rate that would produce the same interest earnings as the nominal rate compounded *P* times per year. For example, earning 18% annual rate compounded monthly (nominal rate) is equivalent to earning 19.56% effective annual interest.

The Calculator lets you easily convert interest rates for comparison. When you press MENU A T to start TVM and then press **Iconv** (F3), you get the interest conversion screen with the following function keys:

Key LabelDescription

P/YR	Stores the number of payments per year.
I%YR	Stores or calculates the nominal annual rate.
EFF%	Stores or calculates the effective annual rate.
I%PER	Stores or calculates the periodic interest rate (*I%YR ÷ P/YR*).
CONT	Stores or calculates the continuously-compounded rate.
360/5	Stores or calculates the rate based on the 360/365 method. This is a very specialized method sometimes used in the savings industry. If you don't know about it, don't worry—it's too complicated to explain here.

Storing any of the interest rate values *automatically* updates the others. Storing *P/YR* updates the other values based on the effective rate. Also, pressing RCL before a function key recalls that value to the calc line.

Pressing ⎡ESC⎤ from the interest conversion screen returns you to the main TVM screen.

Example: Converting and Comparing Interest Rates. Rodeo star Buck Doff is considering how to invest his recent winnings. He has two investment options: one promises to pay 13.6% annual interest, compounded daily, and the other promises to pay 14.0%, compounded semi-annually. Which of Doff's options would give him the highest effective rate?

Keys:	Description:
⎡+7 / x7⎤ ⎡MENU⎤ ⎡A⎤ ⎡T⎤	Starts the TVM application. You may need to press ⎡ESC⎤ to display the main TVM screen.
⎡F3⎤	Selects the interest conversion screen.
365 ⎡F3⎤	Enters the number of compounding periods in option 1.
13.6 ⎡F4⎤	Enters the nominal annual rate for option 1, and returns an effective annual rate of 14.57%.
⎡▶⎤	Selects interest conversion screen, case 2.
2 ⎡F3⎤	Enters the number of compounding periods in option 2.
14.0 ⎡F4⎤	Enters the nominal annual rate for option 2, and returns an effective annual rate of 14.49%.

Use ⎡▶⎤ to switch back and forth between case 1 and case 2 to compare the effective rates. The effective annual rate for option 1 (14.57%) is higher than that for option 2 (14.49%).

If compounding and payment periods differ

TVM in the Calculator assumes that the compounding periods and the payment periods are the same. However, regularly occurring deposits and withdrawals do not necessarily coincide with the investment's compounding periods. To solve a TVM problem where they don't coincide, first convert the interest

rate to an equivalent interest rate with compounding periods that match the regular deposits or withdrawals.

Example: A Savings Account with Compounding Periods Different from Payment Periods. Starting today, Penny Horder makes monthly deposits of $25 into an account paying 5% interest compounded daily (365-day basis). At the end of 7 years, how much will Penny receive from the account?

Keys:	Description:
$\boxed{\overset{+}{x} \overset{-}{/}}$ $\boxed{\text{MENU}}$	
$\boxed{\text{A}}$ $\boxed{\text{T}}$	Starts the TVM application. You may need to press $\boxed{\text{ESC}}$ to get the main TVM screen.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior TVM data.
$\boxed{\text{F3}}$	Selects the interest conversion screen.
365 $\boxed{\text{F3}}$	Enters the number of compounding periods.
5 $\boxed{\text{F4}}$	Enters the nominal annual rate for daily compounding, and returns an effective annual rate of 5.13%.
12 $\boxed{\text{F3}}$	Enters monthly compounding periods, and calculates the equivalent nominal rate for monthly compounding at 5.01%.
$\boxed{\text{ESC}}$	Displays the main TVM screen.
$\boxed{\text{F4}}$	Sets payment mode to beginning of a period.
7 $\boxed{\Leftcurvearrowright}$ $\boxed{\text{F6}}$	Enters the total number of periods.
25 $\boxed{\text{+/-}}$ $\boxed{\text{F9}}$	Enters the payment per period.
0 $\boxed{\text{F8}}$	Enters the present value.
$\boxed{\text{F10}}$	Calculates that Penny's account will have $2,519.61 after 7 years.

Example: Canadian Mortgages. In Canadian mortgages, interest is compounded semi-annually while payments are made monthly. The *Canadian mortgage factor* is calculated by

converting the stated nominal interest rate (compounded semi-annually) to the nominal rate compounded monthly (the payment period). The factor is then used as the TVM variable *I%YR*.

The multinational law firm of Honig, Bradley, and Erickson has opened a Canadian office in Toronto. What is the monthly payment required to fully amortize their 30-year, $300,000 Canadian mortgage with an interest rate of 11.5%?

Keys:	**Description:**
$\boxed{\begin{smallmatrix} + \\ x \end{smallmatrix} 7}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{T}}$	Starts the TVM application. You may need to press $\boxed{\text{ESC}}$ to get the main TVM screen.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior TVM data.
$\boxed{\text{F3}}$	Selects the interest conversion screen.
2 $\boxed{\text{F3}}$	Enters the number of compounding periods.
11.5 $\boxed{\text{F4}}$	Enters the nominal annual interest rate and calculates 11.83% as the effective annual rate.
12 $\boxed{\text{F3}}$	Enters monthly compounding periods, and calculates 11.23% as the equivalent nominal rate for monthly compounding (the *Canadian mortgage factor*).
$\boxed{\text{ESC}}$	Displays the main TVM screen.
30 $\boxed{\Leftrightarrow}$ $\boxed{\text{F6}}$	Enters the total number of periods.
300000 $\boxed{\text{F8}}$	Enters the present value.
0 $\boxed{\text{F10}}$	Enters the future value.
$\boxed{\text{F9}}$	Calculates Honig, Bradley, and Erickson's monthly payment to be $2,910.09.

Additional TVM examples

Yield of a discounted (or premium) mortgage

The annual yield of a mortgage bought at a discount or premium can be calculated given the original mortgage amount (*PV*), interest rate (*I%YR*), periodic payment (*PMT*), balloon payment (if any) (*FV*), and the price paid for the mortgage (new *PV*).

Example: Yield of a Discounted Mortgage. Seymour Profit wishes to purchase a $100,000 mortgage from Skip Towne. Towne originally issued the mortgage at 9% interest for 20 years. Since the mortgage was issued, 42 monthly payments have been made. The loan is to be paid in full (a *balloon payment*) at the end of its fifth year. What is the yield if the purchase price of the mortgage is $79,000?

Calculate PMT for the fully amortized loan (N = 20 x 12, FV = 0, PV = -100,000, and I%YR = 9).

Calculate the balloon payment (FV). Use PMT from step 1, N = 5 x 12.

Store the number of payments remaining until the balloon payment as N (5 x 12 - 42), and store the proposed purchase price as PV (-79,000); calculate I%YR (the annual yield).

Step 1
Calculate *PMT*.

Keys:	Description:
[x̄⁷] [MENU] [A] [T]	Starts the TVM application. You may need to press [ESC] to display the main TVM screen.
[MENU] [C] [D]	Clears any prior TVM data.
20 [⇧] [F6]	Enters the total number of monthly payments for a full 20-year mortgage.
9 [F7]	Enters the annual interest rate.
100000 [+/-] [F8]	Enters the amount of the original loan.
0 [F10]	Enters 0 as *FV*.

F9	Calculates the monthly payment received from the borrower to be $899.73.

Step 2
Calculate the balloon.

5 ⇧ F6	Enters the number of payments in 5 years.
F10	Calculates the balloon due in 5 years to be $88,707.05.

Step 3
Calculate the yield.

RCL F6 − 42 F6	Enters the number of payments remaining until the balloon payment.
79000 +/− F8	Enters proposed, discounted purchase price.
F7	Calculates annual yield for discounted mortgage with balloon to be 20.72%.

Loans with fees

The **annual percentage rate**, APR, incorporates fees charged when a mortgage is issued, which effectively raises the interest rate. The actual amount received by the borrower (*PV*) is reduced, while the periodic payments remain the same.

Example: APR of a Loan with Fees. Ernest Munnie is charged two points for the issuance of his mortgage. One point is equal to 1% of the mortgage amount. If the mortgage amount is $60,000 for 30 years and the interest rate is 11.5% annually with monthly payments, what APR is Ernie paying?

Calculate PMT, using PV=$60,000 and I%YR=11.5%.

Adjust PV to reflect the amount of the loan minus the fees. Then, calculate the APR (I%YR), using the PMT calculated in step 1 (all other values remain the same).

Step 1
Calculate *PMT*.

Keys:	Description:
$\boxed{\substack{+\\x~?}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{T}}$	Starts the TVM application. You may need to press $\boxed{\text{ESC}}$ to display the main TVM screen.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior TVM data.
30 $\boxed{\diagup}$ $\boxed{\text{F6}}$	Enters the number of monthly payments.
11.5 $\boxed{\text{F7}}$	Enters the annual interest rate.
60000 $\boxed{\text{F8}}$	Enters the amount of the loan.
0 $\boxed{\text{F10}}$	Enters 0 as *FV* since there's no balloon payment.
$\boxed{\text{F9}}$	Calculates $594.17 as the monthly payment.

Step 2

Adjust *PV* and calculate the APR.

$\boxed{\text{RCL}}$ $\boxed{\text{F8}}$ $\boxed{-}$

2 $\boxed{\%}$ $\boxed{\text{F8}}$ Enters the actual amount of money received by the borrower.

$\boxed{\text{F7}}$ Calculates the APR to be 11.76%.

Example: Interest-Only Loan with Fees from the Lender's Point of View. Bill Lender is making a $1,000,000, 10-year, 10.5% (annual interest) *interest-only* loan with an origination fee of 3 points. What is the yield to Bill? Assume that the interest-only payments are made monthly. (*PMT* is $1,000,000 x 10.5 ÷ 12, *FV* is the entire loan amount, and *PV* is the loan amount minus the points.)

Keys:	Description:
$\boxed{\substack{+\\x~?}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{T}}$	Starts the TVM application. You may need to press $\boxed{\text{ESC}}$ to display the main TVM screen.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior TVM data.
10 $\boxed{\diagup}$ $\boxed{\text{F6}}$	Enters the number of monthly payments (120).

1000000 [F10] [+/-] [F8]   Enters loan amount and balloon payment (the entire loan).

10.5 [F7]   Enters annual interest rate.

[F9]   Calculates and stores the monthly payment of $8,750.

[RCL] [F8] [-] 3 [%] [=] [F8] Enters amount borrowed (total-points) as $970,000. (PV -970,000.)

[F7]   Calculates APR, the yield to the lender, as 11.00%.

A tax-free account

You can use the TVM screen to calculate the future value of a tax-free or tax-deferred account, such as an IRA or Keogh account. Current tax law will determine the extent to which the account is tax-free. The purchasing power of the future value depends on the inflation rate and the duration of the account.

$N =$ the number of payments until retirement.

$I\%YR =$ the annual dividend rate.

$PV =$ the present value of the retirement account.

$PMT =$ the amount of your deposit. It must be constant for the duration of the account.

$FV =$ the future value of the retirement account.

Example: Future Value and Purchasing Power of a Tax-Free Account. Part 1. Les Tacksis plans to open an individual retirement account with a dividend rate of 8.175%, and invest $2,000 at the beginning of each year until he retires in 35 years. Calculate the account balance at retirement.

Keys: **Description:**

[+/x] [MENU] [A] [T]   Starts the TVM application. You may need to press [ESC] to display the main TVM

screen.

MENU C D	Clears any prior TVM data.
1 F5	Sets payments per year to 1.
F4	Sets payment mode to BEGIN.
35 F6	Enters the number of periods.
8.175 F7	Enters the dividend rate.
0 F8	The present value is 0 before the first payment.
2000 +/- F9	Enters the annual deposit.
F10	Calculates $387,640.45 as the amount in the account at retirement.

Part 2. How much has Les paid into the account at retirement?
RCL F9 * RCL F6 = Calculates *PMT* x *N* to be $70,000.00.

Part 3. How much interest has the account earned. The interest earned equals the difference between *FV* and the total amount deposited.
+ RCL F10 = Calculates the interest part of *FV* to be $317,640.45.

Part 4. If his post-retirement tax rate is 15%, what is the after-tax future value of the account? Assume only interest is taxed.
* 15 % = Calculates taxes, 15% of total interest.
+/- + RCL F10 = Subtracts taxes from total *FV* to calculate after-tax *FV* to be $339,994.39.

Part 5. Calculate the purchasing power of this amount in today's dollars, assuming an 8% annual inflation rate.
F10

0 F9
8 F7
F8   Calculates the purchasing power in today's
                            dollars to be $22,995.36. A negative number
                            for *PV* in the display indicates money
                            available to flow *from* the investor, so it
                            represents positive purchasing power.

A taxable retirement account

The following example calculates the future value of a *taxable*
retirement account that receives regular, annual payments. The
annual tax on the interest is paid out of the account. Assume
the deposits have been taxed already.

N =   the number of payments until retirement.

I%YR =   the annual interest rate diminished by the tax rate:
                          interest rate x (1 - *tax rate*).

PV =   the current amount in the retirement account.

PMT =   the amount of the annual payment.

FV =   the future value of the retirement account.

**Example: Future Value and Purchasing Power of a Taxable
Retirement Account. Part 1.** Izzy Smart is considering investing
his money with E. Norma Spayback Investment Company.
They claim that if Izzy invests $3,000 with them each year for
35 years at a dividend rate of 8.175%, with dividends taxed as
ordinary income, he'll be rich at retirement with close to
$500,000. Exactly how much would Izzy have in the account at
retirement? Assume a tax rate of 28%, and that payments begin
today.

Keys: **Description:**
⊞ MENU A T   Starts the TVM application. You may
                            need to press ESC to get the main TVM
                            screen.

MENU C D	Clears any prior TVM data.
1 F5	Sets payments per year to 1.
F4	Sets payment mode to BEGIN.
35 F6	Enters the number of periods.
8.175 – 28 % F7	Enters and stores the dividend rate diminished by the tax rate as 5.89%.
0 F8	The present value is 0 before the first payment.
3000 +/– F9	Enters the annual deposit.
F10	Calculates \$345,505.61 as the future value of the taxed account. Due to taxation, this is *not* "close to \$500,000."

Part 2. What would be the purchasing power of that amount in today's dollars, assuming 8% annual inflation?

0 F9	No payments (*PMT*).
8 F7	*I%YR*
F8	Calculates the purchasing power in today's dollars to be \$23,368.11. A negative number for *PV* indicates money to flow *from* the investor, so it is positive purchasing power.

15
Uneven cash flow calculations

When you press ⌈⁺⁷ₓ₇⌉ ⌈MENU⌉ ⌈A⌉ ⌈F⌉, you get the Cash Flows application, which enables you to calculate internal rate of return (IRR%), net present value (NPV), net uniform series (NUS), and net future value (NFV). Also, you can plot net present value versus the annual interest rate.

NPV and IRR%: discounting cash flows

The NPV and IRR% functions are frequently referred to as *discounted cash flow functions*. When a cash flow is discounted, you calculate its present value. When multiple cash flows are discounted, you calculate the present values and add them together.

The net present value (NPV) function finds the present value of a series of cash flows. The annual nominal interest rate must be known to calculate NPV.

The internal rate of return (IRR%) function calculates the annual nominal interest rate that is required to give an NPV of zero.

The utility of these two financial tools becomes clear after working a few examples.

Making cash-flow calculations

To make cash-flow calculations:

Organize your cash flows. Just like with TVM, money flowing from you is negative, and money flowing to you is positive. Put equal, consecutive cash flows into groups.

Press [x7] [MENU] [A] [F] *to start the Cash Flow application.*

If necessary, clear prior data by pressing [MENU] [C] [D].

Enter the number of compounding periods per year.

If you plan to calculate NPV, NUS, or NFV, enter the annual interest rate.

Enter the amount of the initial investment.

Enter the amount of the next cash flow. If this amount occurs more than once consecutively, enter in the right-hand column the number of times it occurs.

Repeat the previous step for all cash flows and groups.

Press the function key for what you want to calculate: IRR%, NPV, NUS, or NFV.

Here is what some cash-flow data might look like:

Cash-flow amounts.

```
Calculator: CFLOW.CFL          Cash Flow              11/15/93   7:49 am
                      Init Flow:                   -50,000.00      1
                      Flow#    1)<-               ▮5,000.00▮       3
                               2)                  10,000.00       4
                               3)                       0.00       1
P/YR = 1                       4)                  15,000.00       3
                               5)
I%YR = 0.00                    6)
                               7)
                               8)
                               9)

                                         IRR%/YR  =  11.30

   Help  | Insert | Delete | IRR%/YR | NPV  | NUS  | NFV  | I%YR  | P/YR  | Plot
```

Number of occurrences.

An Example of Cash-Flow Data

You can save your cash-flow data in files for future use by using [MENU] [F] [C]. Cash-flow files are automatically given a .CFL extension. You open cash-flow files using [MENU] [F] [O].

The cash-flow function keys

Key Label	Description
Insert	Inserts cash flows into the list at the highlight.
Delete	Deletes the highlighted cash flows.
IRR%/YR	Calculates the *annualized* internal rate of return—the annual interest rate at which the net present value of the cash flows equals 0.
NPV	Calculates net present value—the present value of a series of cash flows plus the initial cost of the investment, computed for a specified periodic interest rate.
NUS	Calculates net uniform series—the dollar amount of regular, equal cash flows having a present value equivalent to the net present value.
NFV	Calculates net future value—the future value of the net present value.
I%/YR	Stores the annual nominal interest rate.
P/YR	Stores the number of periods per year.
Plot	Plots NPV vs. the periodic interest rate.

Uneven cash flow examples

Example: Calculating IRR%, NPV, NUS, and NFV of an Investment. Part 1. An investor makes an initial investment of $80,000 and expects returns over the next 5 years as shown in the table below:

Year 1	*$5,000*
Year 2	*$4,500*
Year 3	*$5,500*
Year 4	*$4,000*
Year 5	*$115,000*

Calculate IRR%, NPV, NUS, and NFV, assuming an annual interest rate of 10.5%.

Keys: **Description:**

[x̄7] [MENU] [A] [F]   Starts the Cash Flow application.

[MENU] [C] [D]   Clears any prior data.

1 [F9]   Enters 1 compounding period per year.

80000 [+/-] [ENTER]   Enters the investment as the initial cash flow.

5000 [ENTER] 4500 [ENTER] 5500 [ENTER] 4000 [ENTER] 115000 [ENTER]   Enters the cash flows over the life of the investment.

[F4]   Calculates the IRR% per year to be 11.93.

10.5 [F8]   Enters the annual interest rate.

[F5]   Calculates the NPV to be $4,774.63.

[F6]   Calculates the NUS to be $1,275.66.

[F7]   Calculates the NFV to be $7,865.95.

Part 2. Assuming the same interest rate, calculate NPV if cash flow number 4 is reduced from $4,000 to $1,000.

Highlight flow# 4   Use the arrow keys to highlight the $4,000 cash flow.

1000 [ENTER]   Inserts $1,000 in its place.

[F5]   Calculates the NPV to be $2,762.43.

Example: An Investment with Grouped Cash Flows. You are considering an investment that requires a cash outlay of $50,000 with the following annual returns:

> *Flow 1*   *3 annual payments of $5,000*
> *Flow 2*   *4 annual payments of $10,000*
> *Flow 3*   *1 annual payment of $0*
> *Flow 4*   *3 annual payments of $15,000*

Calculate IRR%. Also, find the NPV at an annual interest rate of 9%.

Keys:	Description:
[x₇⁺] [MENU] [A] [F]	Starts the Cash Flow application.
[MENU] [C] [D]	Clears any prior data.
1 [F9]	Enters 1 compounding period per year.
50000 [+/-] [ENTER]	Enters the initial investment.
5000 [▶] 3 [ENTER] 10000 [▶] 4 [ENTER] 0 [ENTER] 15000 [▶] 3 [ENTER]	Enters the groups of cash flows.
[F4]	Calculates an IRR% of 11.30.
9 [F8] [F5]	Enters the interest rate and calculates an NPV of $6,728.63.

Example: An Investment with Quarterly Returns. You have been offered an opportunity to invest $20,000. The investment returns quarterly payments over 4 years as follows:

Year 1	*4 payments of $500*
Year 2	*4 payments of $1,000*
Year 3	*4 payments of $2,000*
Year 4	*4 payments of $3,000*

Calculate the annual rate of return for this investment.

Keys:	Description:
[x₇⁺] [MENU] [A] [F]	Starts the Cash Flow application.
[MENU] [C] [D]	Clears any prior data.
4 [F9]	Enters 4 periods per year, based on quarterly payments.
20000 [+/-] [ENTER]	Enters the initial investment.
500 [▶] 4 [▶] 1000 [▶] 4 [▶] 2000 [▶] 4 [▶] 3000 [▶] 4 [▶]	Enters the groups of cash flows.
[F4]	Calculates the annual return to be 9.72%.

Example: Deposits Needed for a Future Expenditure. Your son will be starting college in 12 years, at which time he will need $15,000 at the beginning of each year for 4 years. How much should you deposit each month into a fund paying 9% annual interest to meet his educational expenses?

To do this calculation, enter the withdrawals into a cash flow list along with zero for all the deposits. Then, store the annual interest rate and calculate NUS. NUS is the periodic deposit equivalent to the withdrawals.

Keys:	**Description:**
$\boxed{\scriptstyle{+\atop x}7}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{F}}$	Starts the Cash Flow application.
$\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$	Clears any prior data and resets the number of periods per year to 12.
0 $\boxed{\text{ENTER}}$	Enters zero as the initial cash flow.
0 $\boxed{\blacktriangleright}$ 12 $\boxed{*}$ 12 $\boxed{-}$ 1 $\boxed{\text{ENTER}}$	Enters 143 months (after the initial investment) until the first withdrawal.
15000 $\boxed{\text{ENTER}}$	Enters the freshman year withdrawal.
0 $\boxed{\blacktriangleright}$ 11 $\boxed{\text{ENTER}}$	Enters 11 more months until the next withdrawal.
15000 $\boxed{\text{ENTER}}$	Enters the sophomore year withdrawal.
0 $\boxed{\blacktriangleright}$ 11 $\boxed{\text{ENTER}}$	Enters 11 more months until the next withdrawal.
15000 $\boxed{\text{ENTER}}$	Enters the junior year withdrawal.
0 $\boxed{\blacktriangleright}$ 11 $\boxed{\text{ENTER}}$	Enters 11 more months until the next withdrawal.
15000 $\boxed{\text{ENTER}}$	Enters the senior year withdrawal.
9 $\boxed{\text{F8}}$	Enters the interest rate.
$\boxed{\text{F6}}$	Calculates an NUS of 182.30. Starting this month, you would need to make monthly payments of $182.30 into this fund for your son's education.

Plotting

Pressing **Plot** (F10) when you're in the Cash Flow application enables you to plot NPV versus I%/YR for the current cash-flow data. Here is a plot using the autoscale feature (**Auto**) for the second example in this chapter.
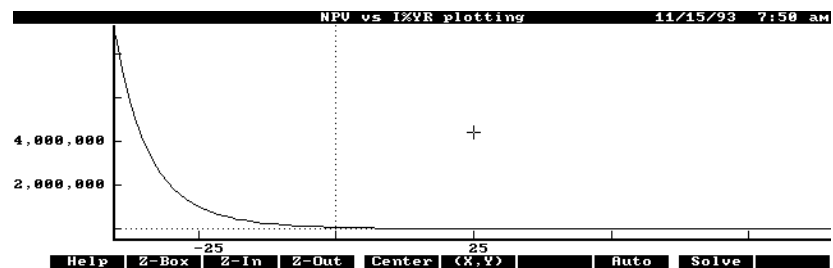
For a more detailed explanation of the plotting parameters and procedures, see *Function plotting* in chapter 19.

16
Currency and other unit conversions

Press ⊞ MENU A O to see the Conversions menu. Or, as a shortcut from within the Calculator, press CTRL + O.

```
┌─────────────────────────────────────────┐
│          Select Conversion               │
│  Conversion                               │
│  ┌─────────────┐      ┌─────────────┐     │
│  │Currency     │      │     OK      │     │
│  │Length       │      └─────────────┘     │
│  │Area         │                          │
│  │Volume       │      ┌─────────────┐     │
│  │Mass         │      │   Cancel    │     │
│  │Temperature  │      └─────────────┘     │
│  └─────────────┘                          │
└─────────────────────────────────────────┘
```
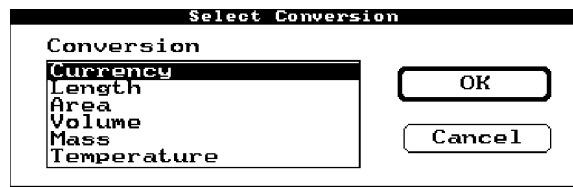
Highlight the units you want to convert and press ENTER. To highlight a unit type, either use the arrow keys or type the first letter of the word.

Pressing ESC from any conversion screen returns you to the Select Conversions menu. Also, pressing MENU C D clears all the displayed unit values.

Converting currencies

Since exchange rates change frequently, you have the ability to change exchange rates between currencies.

To change exchange rates:

From within Currency Conversions, press F2 *(Edit) to display the Currency Conversions Edit screen.*

Use the arrow keys to highlight a currency.

Type the exchange rate for that currency. A rate of 0 removes a currency from consideration when you calculate exchanges.

Press ▼ *or* ENTER*.*

Repeat the steps 4 through 6 for all the desired currencies. Note that F10 *(More) enables you to see all three screens of currencies. Here is what a list might look like.*

```
┌──────────────────────────────────────────────────────────────────┐
│ Calculator             Currency Conversions Edit      11/15/93  7:53 am│
│ Update currency conversion rates.                                  │
│                                                                    │
│ Dollar................................ Rate =          1.00        │
│ Yen................................... Rate =        123.00        │
│ Mark.................................. Rate =          1.58        │
│ Franc................................. Rate =          5.33        │
│ Lira.................................. Rate =      1,450.00        │
│ Pound................................. Rate =          0.64        │
│ Canadian $............................ Rate =          1.28        │
│ ─────────────────────────────────────────────────────────────────│
│                                                        0.00        │
│   Help  │ Name │Dollar│ Yen │ Mark │ Franc │ Lira │ Pound │Canadia│ More │
└──────────────────────────────────────────────────────────────────┘
```

When you're finished assigning rates, press ESC *to return to the main Currency Conversions screen.*

To calculate exchanges:

From within Currency Conversions, type the number of units and press the function key for the corresponding currency—for example, 20 F8 (**Pound**). All the currencies are shown simultaneously in equivalent amounts—in this case, in amounts equal to 20 Pounds.

A currency value can be returned to the calc line by pressing RCL followed by the function key for the currency you want.

Changing the list of currencies

You can add up to five currencies to the list of currencies, plus you can change the name of any currency in the original list. Effectively, this means that you can create a list with any 21 currencies you want.

To change the name of a currency:

From within Currency Conversions, press F2 *to display the Currency Conversions Edit screen.*

Highlight the currency you want to change and press F2 *(Name).*

Type the new name and press ENTER*.*

Type the exchange rate for the new currency and press ENTER*.*

Repeat steps 2 through 4 for all changes you want to make.

When you're finished, press ESC *to return to the main Currency Conversions screen.*

You can use the previous procedure to add a new currency to the bottom of the list by highlighting an empty currency line in step 2. Use $\boxed{\text{F10}}$ to find a page of currencies with empty lines.

Converting other units

Besides currency conversions, you have the ability to convert related units within the categories of length, area, volume, mass, and temperature.

To convert units of length, area, volume, mass, or temperature:

Press $\boxed{\substack{+ \\ x \, 7}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{O}}$ to start the Conversions application.
Select the type of units you want to convert (highlight and press $\boxed{\text{ENTER}}$).
Type a value and press the function key corresponding to its unit. If the unit you want isn't currently displayed, remember that $\boxed{\text{F10}}$ displays another screen of related units for most unit types.

A unit value can be returned to the calc line by pressing $\boxed{\text{RCL}}$ followed by the function key for the unit you want.

Example: Length Conversion. How many meters are there in 1 mile?

Keys:	Description:
$\boxed{\substack{+ \\ x \, 7}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{O}}$	Starts the Conversions application.
$\boxed{\text{L}}$ $\boxed{\text{ENTER}}$	Displays the length conversions screen.
1 $\boxed{\text{F2}}$	Enters 1 mile and displays the conversions.
$\boxed{\text{RCL}}$ $\boxed{\text{F7}}$	Returns the number of meters to the calc line.

There are 1609.34 meters in 1 mile.

```
Calculator              Length Conversions         11/15/93  8:09 am
miles......................... mile  =                    1.00
yards......................... yard  =                1,760.00
feet.......................... foot  =                5,280.00
inches........................ inch  =               63,360.00
kilometers.................... km    =                    1.61
meters........................ meter =                1,609.34
centimeters................... cm    =              160,934.40
millimeters................... mm    =            1,609,344.00
─────────────────────────────────────────────────────────────────
                               meter = 1,609.34
 │ Help │ Mile │ yard │ foot │ inch │ Km │ Meter │ cm │ MM │ More │
```

17
Statistics

When you press $\boxed{+/}_{x}$ $\boxed{\text{MENU}}$ $\boxed{A}$ $\boxed{L}$ (or $\boxed{\text{CTRL}}$+$\boxed{L}$ from anywhere in the Calculator), you get the List Stat application, which enables you to:
Calculate statistics for a column of data.
Fit a curve to a set of data.
Forecast estimates.
Graph your data and curve.

Entering and editing data

You can enter data in either one column for one-variable statistics or two columns for paired-variable statistics. When you're in the **data edit screen**, $\boxed{\text{F4}}$ switches between one and two columns.

```
Calculator: STAT.STA          Statistics: Edit X           11/15/93  8:01 am
   Item    1)                            340.00
           2)                            175.00
           3)                            450.00
           4)                            780.00
           5)                            625.00
           6)                            245.00
           7)<-    ███████████████████
           8)
           9)
        Sum:                           2,615.00
                                                       1-Var
                                                             245.00
     █Help █ █Insert█ █Delete█ █2-Var█ █SwapVar█ █Sort █ █SUM █ █    █ █Stats █
```

Data Edit Screen with One Column of Data

To enter statistical data:

Press ⌈±7⌉ ⌈MENU⌉ ⌈A⌉ ⌈L⌉ *to start the List Stat application.*
If the data edit screen is not displayed, press ⌈ESC⌉ *one or more times or press*
    `Edit` *(*⌈F10⌉*) to see it.*
If the displayed number of columns (one or two) is not right for your data,
    press ⌈F4⌉*.*
Type in your data, pressing ⌈ENTER⌉ *after each number.*

To edit a list of data:

Highlight an entry to change, type a number, and press ⌈ENTER⌉.
You can also use these keys in the data edit screen:

Data Editing Function Keys

Key Label Description

`Insert` Inserts new data at the highlight, moving the rest of
the data down.

`Delete` Deletes the highlighted number. Note that the *data
pair* is deleted, whether both numbers are
displayed or not.

`Sort` Numerically sorts the column with the highlight
from least to greatest. Pairs of data are kept
together.

`S apVar` Swaps the position of the two columns of data, even if only one column is displayed. Note: If you've entered only one column of data, `S apVar` swaps that column with a column of zeros; pressing `S apVar` swaps back the original data.

To clear data:

From the data edit screen, press MENU C D to clear the entire data list. Both columns are cleared, even if only one is visible.

Saving statistical data in a file

When you switch to another application or open another data file, changes to the current file are saved automatically. The default statistics file is STAT.STA.

You can copy data to another file that you name by using MENU F C (File Copy). If you don't specify a file extension, the palmtop automatically appends the extension .STA for you.

Use MENU F O to open another statistical data file.

Statistics calculations

To calculate statistics for a column of data:
Make sure the highlight is in the column of data you want to use to calculate the statistics (use ▶ or ◀).
Press `Stats` *(F9).*

Here are the function keys available when you press `Stats` :

Stats Function Keys

Key Label Description

`MEAN` Recalls the mean value to the calc line.

`STDEV`	Recalls the standard deviation to the calc line.
`MIN`	Recalls the minimum value to the calc line.
`MEDIAN`	Recalls the median value to the calc line.
`MAX`	Recalls the maximum value to the calc line.
`.MEAN`	Recalls the weighted mean to the calc line. This key appears only when two columns of data are visible in the data edit screen.
`G.STDEV`	Recalls the grouped standard deviation to the calc line. This key appears only when two columns of data are visible.
`Sa ple` `Popul` [F9]	switches between sample and population for the model used to calculate the standard deviation and grouped standard deviation. Use `Sa ple` to get unbiased results based on a *sample* of a population; use `Popul` to get results based on data for an entire population. The Sample/Popul annunciator (just above the calc line) indicates the current mode.
`Edit`	Returns to the data edit screen.

Example: Statistics Calculations. Nimrod Archery Company had the following phone bills during the past 6 months:

Month	Phone Expense	Month	Phone Expense
1. March	$340	4. June	$780
2. April	$175	5. July	$625
3. May	$450	6. August	$245

To prepare for this example:

Press ⌊x↑7⌋ ⌊MENU⌋ ⌊A⌋ ⌊L⌋ *to start the List Stat application.*
Press ⌊MENU⌋ ⌊C⌋ ⌊D⌋ *to clear any prior data.*

3. If ⌊F4⌋ shows ` 1-Var `, press it to display only one column of data. When you press ` 1-Var `, the label changes to ` 2-Var `.

Now calculate population statistics for the data and return the standard deviation to the calc line.

Keys:	Description:
340 ⌊ENTER⌋	Enters the data.
175 ⌊ENTER⌋	
450 ⌊ENTER⌋	
780 ⌊ENTER⌋	
625 ⌊ENTER⌋	
245 ⌊ENTER⌋	
⌊F9⌋	Calculates and displays the statistics.

At this point if ⌊F9⌋ shows ` Popul `, press it to choose the population statistics model for the standard deviation. When you press ` Popul `, the Ᵽⱷᵽᵾᶅ annunciator appears above the calc line.

⌊F3⌋	Returns the standard deviation to the calc line.

```
Calculator: STAT.STA            Statistics: X              11/15/93  8:04 am
  Mean Value.............................. MEAN   =   435.83
  Standard Deviation...................... STDEV  =   211.37

  Minimum Value........................... MIN    =   175.00
  Median Value............................ MEDIAN =   395.00
  Maximum Value........................... MAX    =   780.00



                                                 1-Var ━━ Popul ━━
                                                       211.37
       Help │ MEAN │ STDEV │ MIN │ MEDIAN │ MAX │     │ Sample │ Edit
```

To calculate weighted mean and grouped standard deviation:

Within the List Stat application, enter data into two columns, with the first column (x-column) containing the numeric data and the second column (y-column) containing the weights or frequencies of each number.

Press `Stats` *(* F9 *) to see the values for weighted mean and grouped standard deviation. To recall a value to the calc line, press the function key for the value you want.*

Curve fitting and forecasting

The Calculator enables you to find a mathematical relationship between two sets of numbers (*x*-values and *y*-values) using curve fitting. Once the curve is calculated, you can use it to do forecasting (what if?) calculations.

To calculate the curve, the Calculator uses one of four models. The default is Linear and stays in effect until you change it.

Linear Curve Fit

$y=B+Mx$

Exponential Curve Fit

$y=Be^{Mx}$

Logarithmic Curve Fit

$y=B+M \ln x$

Power Curve Fit

$y=Bx^M$
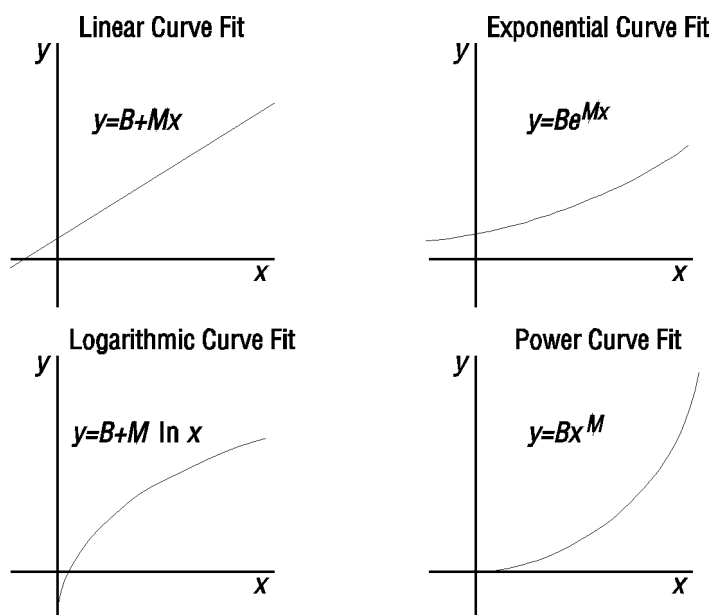
To do curve fitting and forecasting:

Within the List Stat application, enter two columns of data. With two columns visible, the left column represents the x-values and the right column represents the y-values.

Press **Frcast** (F8) and check the correlation coefficient to ensure the current model is acceptable.

If necessary, change the model by pressing F7 .

To do forecasting, type a number and press the function key for the known value— **XVALUE** or **YVALUE** .

Example: Curve Fitting and Forecasting. For the past 6 weeks the manager of Tom's and Jerry's Pet Store has kept records of their sales and the number of minutes of radio advertising that were purchased:

	Minutes of Sales	Advertising
Week 1	2	$1,400
Week 2	1	$920
Week 3	3	$1,100
Week 4	5	$2,265
Week 5	5	$2,890
Week 6	4	$2,200

Part 1. Determine whether there is a linear relationship between the amount of radio advertising purchased and the weekly sales.

To prepare for this example:

Press $\boxed{\frac{+}{x7}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{L}}$ to start the List Stat application.
Press $\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$ to clear any prior data.
If $\boxed{\text{F4}}$ shows `2-Var` *, press it to display two columns of data.*

Keys: Description:

2 $\boxed{\text{ENTER}}$ 1400 $\boxed{\text{ENTER}}$ Enters the first data pair.

1 $\boxed{\text{ENTER}}$ 920 $\boxed{\text{ENTER}}$ Enters the second data pair.

3 $\boxed{\text{ENTER}}$ 1100 $\boxed{\text{ENTER}}$ Enters the rest of the data.

5 $\boxed{\text{ENTER}}$ 2265 $\boxed{\text{ENTER}}$

5 $\boxed{\text{ENTER}}$ 2890 $\boxed{\text{ENTER}}$

4 $\boxed{\text{ENTER}}$ 2200 $\boxed{\text{ENTER}}$

$\boxed{\text{F8}}$ Calculates the curve and displays the forecast screen.

If the forecast model is not Linear, press $\boxed{\text{F7}}$ $\boxed{\text{L}}$ $\boxed{\text{F10}}$ to select it.

```
┌──────────────────────────────────────────────────────────────────┐
│ Calculator: STAT.STA          Forecast              11/15/93  8:06 AM │
│                                                                    │
│   X Value................................ XVALUE  =      0.00      │
│   Y Value................................ YVALUE  =      0.00      │
│                                                                    │
│   Correlation........................... CORR    =      0.90      │
│   Slope................................. SLOPE   =    425.88      │
│   Intercept............................. INTRCPT =    376.25      │
│                                                                    │
│   Forecast model....................... Model   =   LINEAR       │
│  ─────────────────────────────────────── 2-Var ─────────────      │
│                                               2,200.00            │
│  ▐Help ▌XVALUE▐YVALUE▌ CORR ▐ SLOPE▐INTRCPT▌Model▐ Sums ▌ Plot ▐ Edit▌ │
└──────────────────────────────────────────────────────────────────┘
```

The correlation coefficient of 0.90 satisfies the manager that it is a linear relationship.

Part 2. Estimate the level of sales if 7 minutes of advertising were purchased.

7 [F2] [F3]   Enters 7 as the *x*-value and displays a *y*-value of 3,357.38. Tom's and Jerry's can expect around $3,300 in sales with 7 minutes of radio advertising.

To view statistical summations:

Display the data edit screen (press [ESC] one or more times if necessary).

Press ▐ **Frcast** ▌*(*[F8]*) then* ▐ **Su s** ▌*(*[F8]*).*

To recall a value to the calc line, press the function key for the summation value you want.

Here are the summation values for the data in the previous example:

```
Sum X........................ Sum X  =                    20.00
Sum Y........................ Sum Y  =              10,775.00

Sum X*Y...................... Sum XY =              41,595.00

Sum X².......................  Sum X² =                   80.00
Sum Y².......................  Sum Y² =          22,338,725.00
                                                    2-Var
                                                  3,357.38
```
```
  Help | Sum X | Sum Y |       | Sum XY |      | Sum X² | Sum Y² |       | Frcast
```

Plotting the curve model for your data

The easiest way to plot the curve model for your data is to use the autoscale feature:

Display the data edit screen (press ESC *one or more times if necessary).*
Make sure both columns of data are visible (press
    2-Var *if necessary).*
Press **Frcast** *(* F8 *).*
Press **Plot** *(* F9 *).*
Press **Auto** *(* F3 *) to display the curve.*
When you're finished viewing the curve, press ESC *.*

In addition, you can take advantage of the Calculator function-plotting power and flexibility as described in chapter 19 under *Function plotting*.

18
Date calculations

Press ⌨️ `MENU` `A` `D` to start the Date Calculations
application. You can use Date Calculations to:

Determine the day of the week for any date.

Find the number of days between two dates.

Determine the date a given number of days in the future or past.

Date Calculation Function Keys

Key Label Description

DATE1	**DATE2**	Stores or calculates a date, using the current Calculator date format—month/day/year (MM.DDYYYY), or day.month.year (DD.MMYYYY), or year.month.day (YYYY.MMDD). Also displays the day of the week. If you omit YYYY, the current year is used. See the next page for more information on date formats.
DDAYS		Stores or calculates number of days between *DATE1* and *DATE2* using the actual calendar. The actual calendar recognizes leap years.
360/YR		Calculates number of days between *DATE1* and *DATE2* using the 360-day calendar (based on 30-day months).
365/YR		Calculates number of days between *DATE1* and *DATE2* using the 365-day calendar (ignores leap years).
TODAY		Displays the current date, which can then be stored in *DATE1* or *DATE2*.

About Calculator Date Formats

The Setup utility enables you to set the current date format for
your palmtop. The 11 different formats in Setup correspond to
three formats that the Calculator uses. See chapter 21 for
instructions on changing the current date format.

Date Formats: Calculator vs. Setup Utility

Calculator	Setup Utility	
DD.MMYYYY	(DD-MMM-YY)	(DD-MMM)
	(MMM-YY)	(DD-MM/YY)
	(DD.MM.YY)	(DD/MM)

	(DD.MM)	
MM.DDYYYY	(MM/DD/YY)	(MM/DD)
YYYY.MMDD	(YY-MM-DD)	(MM-DD)

Example: Calculating Dates. What day of the week is July 4, 1996? How many days between July 4, 1996 and September 23, 1997? What day is 90 days after July 4? What day is 180 days prior to July 4? Assume the current date format is month/day/year (MM.DDYYYY).

Keys:	Description:
$\boxed{{}^{+}_{x}\,{}^{-}_{\div}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{D}}$	Starts the Date Calculation application.
7.041996	Enters July 4, 1996 in the current date format.
$\boxed{\text{F3}}$	July 4, 1996 falls on a Thursday.
9.231997 $\boxed{\text{F4}}$	Enters September 23, 1997 in *DATE2*.
$\boxed{\text{F5}}$	The actual number of days between *DATE1* and *DATE2* is 446.
90 $\boxed{\text{F5}}$ $\boxed{\text{F4}}$	October 2 is 90 days after July 4, 1996.
180 $\boxed{+/-}$ $\boxed{\text{F5}}$ $\boxed{\text{F4}}$	January 6 is 180 days prior to July 4, 1996.

To clear the Date Calculation variables:

Press $\boxed{\text{MENU}}$ $\boxed{\text{C}}$ $\boxed{\text{D}}$. *DATE1* and *DATE2* are reset to today's date.

19
Using the Solver and Function Plotting

The Solver enables you to enter your own equations with variables into the Calculator. You can solve for any of the variables using special function keys, one for each variable, that the Solver creates for you. You can also plot an equation against any of it's variables.

Your equations can be named and saved in the **Solve Catalog** for later use.

The solve catalog

Press $\boxed{+\atop x/}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{S}}$ to start the Solver. If a screen entitled Solve Catalog is not displayed, press $\boxed{\text{ESC}}$ repeatedly until it is. Until you enter some equations, your Solve Catalog will be empty, but here is an example with some equations.

Optional names.   Equations.

```
Calculator: SOLVE.EQN          Solve Catalog          11/15/93  8:12 am
Carpet          PPSY*L*W/9=COST
Volume          V=L*W*H
                Rate*Time=Distance
                s1^2+s2^2=h^2
Ec Order Qty    EOQ=SQRT(2*FIXCST*SALES/(CARRY%/100*PRICE))
Salary          hours*rate=pay
```



```
    Help  | Insert | Delete |  Find  ■      |  Edit  |      | 1-2-3 ■  Calc  |  Plot
```
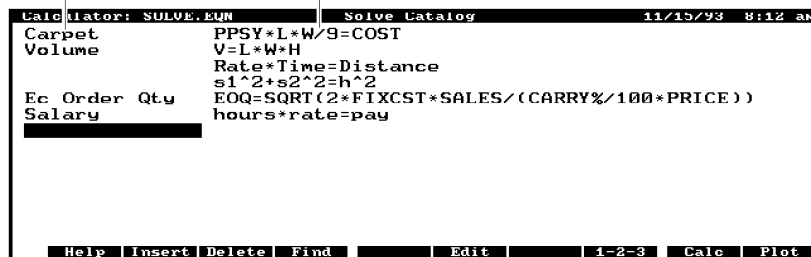
Press Edit (F6) to edit or view
the highlighted equation.

Entering and editing equations

The Solve Catalog can contain as many equations as your palmtop's memory permits. Entering equation names is optional.

Solver Example. Suppose you frequently buy carpet and must calculate how much it will cost. The price is quoted to you per square yard. Regardless of how you do the calculation (even if you do it longhand), you use an equation:

Price per square yard → PPSY   Length (feet) → L   Width (feet) → W

$$\frac{PPSY \times L \times W}{9} = COST$$

Converts square feet to square yards.

Part 1. Enter the above Carpet equation into the Solver.

Keys: **Description:**

[÷7̲] [MENU] [A] [S]   Selects the Solve Catalog. If you don't see a screen entitled Solve Catalog, press [ESC] until you see it.

[FN] [▶] [◀]   Ensures the highlight is at the end of the catalog and in the name field (the left side of the screen where equation names are displayed).

Carpet [ENTER]   Enters the equation name into the name field.

[▶]   Moves the highlight to the equation field.

PPSY [∗] L [∗] W [/] 9 [=] COST   Automatically displays the solve editor and types the Carpet equation.

[F10] [F9]   Verifies the equation, enters it into the equation list, and selects the solve calc screen. If the Solver detects an error in the equation, the cursor in the solve editor locates the problem. Correct the error and press [F10] [F9] again.

```
Calculator: SOLVE.EQN        Solve Calc           11/15/93  8:13 am
 Carpet: PPSY*L*W/9=COST

                                    PPSY =          0.00
                                    L    =          0.00
                                    W    =          0.00
                                    COST =          0.00



                                                    0.00
     Help │ PPSY │  L  │  W  │ COST │     │     │     │     │     │
```

Part 2. Calculate the cost of carpet needed to cover a 9 foot by 12 foot room. The carpet costs $22.50 per square yard.

Keys: **Description:**

22.5 $\boxed{\text{F2}}$ Stores the price per square yard in *PPSY*.

12 $\boxed{\text{F3}}$ Stores the length.

9 $\boxed{\text{F4}}$ Stores the width.

$\boxed{\text{F5}}$ Calculates the cost, $270.00.

```
Calculator: SOLVE.EQN          Solve Calc            11/15/93  8:14 am
 Carpet: PPSY*L*W/9=COST
                                       PPSY =      22.50
                                       L    =      12.00
                                       W    =       9.00
                                       COST =     270.00



                                       COST  =  270.00
     Help │ PPSY │  L  │  W  │ COST │     │     │     │     │
```

Part 3. Determine the most expensive carpet you can buy if the maximum amount you can pay to carpet the room is $300. The following steps illustrate the "point-and-shoot" way to enter a value into a variable and to solve for a variable. Point-and-shoot is described in detail in chapter 1.

Keys: **Description:**

$\boxed{\blacktriangle}$ 300 $\boxed{\blacktriangle}$ $\boxed{\blacktriangle}$ $\boxed{\blacktriangle}$ Stores $300 in *COST* and moves the cursor to the *PPSY* cell.

$\boxed{\text{SPACEBAR}}$ Calculates the maximum price per square yard you can pay to be $25.00.

To enter an equation and its name:

Press $\boxed{\div 7}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{S}}$ *to display the Solve Catalog. You may need to press* $\boxed{\text{ESC}}$ *one or more times, also.*

Move the highlight bar up or down to the position you want to enter the new equation.

Type the equation. When you start typing, the solve editor *automatically starts. Follow these guidelines:*

  To improve readability, you can add spaces between
    elements.

You can add a comment at any point in an equation. Simply start and end the comment with an exclamation point (!).

Press ENTER to break an equation at any point to improve clarity.

The maximum length of an equation is about 2000 characters, and a single equation can have up to 256 different variables.

Press F10*.*

Entering a name is optional. Press ◄ to highlight the name field. Type a name and press ENTER*.*

When you're ready to use the equation, press **`calc`** at which point the Solver verifies the equation. If the equation cannot be interpreted, the Solver briefly displays: Invalid equation and the cursor is positioned before the first character the Solver could not interpret. Check to be sure you've made no typing mistakes and that you've followed the rules for writing equations described later in this chapter.

To edit an equation or its name:

From the Solve Catalog, press F6 (Edit) to edit the highlighted equation or name. To cancel an edit, press ESC.

Calculating with your solver equations

To perform a calculation:

Display the Solve Catalog screen.

Highlight the equation you want to calculate.

Press **`Calc`** F9*. This selects a new screen dedicated to the current equation where each variable is represented by a function key.*

Store your known values by typing a value and then pressing the function key for the associated variable. You must store values in all variables but one.

Press the function key for the value you want to calculate. If the Solver is able to find a solution to the equation, the answer is displayed in the calc line.

In most cases, this is all you will need to know about how the Solver works. However, there are certain types of equations that are more difficult to solve. If, during the calculation, the display temporarily shows sets of changing numbers, such as:

```
A:1.50000000000 -
 A:1.13476129834 +
```

the Solver is searching for a solution. See *How the Solver works* later in this chapter.

Clearing and deleting solver equations and variables

To clear (set to zero) a set of variables:
Display the Solve Catalog.
Highlight the desired equation and press [F9]*.*
Press [MENU] [C] [D]*.*

Caution

Be sure you display the solve calc screen (press [F9]*), not the Solve Catalog screen to clear the variables for an equation. If you press* [MENU] [C] [D] *in the Solve Catalog screen, you will erase all variables and all equations.*

About shared solver variables

If two or more equations contain the same variable names, that variable (and its value) is shared among the equations in which it appears. If you delete or clear a shared variable, its value is lost to all the equations that share it.

To delete an empty line, a name, or an equation and/or its variables:
In the Solve Catalog highlight the empty line, name, or equation and use [F3] (Delete). ([ESC] cancels the delete command.)

Note

When deleting an equation, you should first delete its variables (as long as none are shared variables) to free up memory.

If you delete the equation's variables but not the equation, the variables are created again with values of zero the next time you use the equation.

To delete all variables and/or all equations:

Display the Solve Catalog.
Press MENU C D.
Use ▲ *to select all equations, all variables, or both.*
Press F10 *to delete them, or press* F9 *to cancel the delete.*

Note

When you delete variables, you free up for other uses the memory they used. If you do not delete the equations, the variables are created again with values of zero the next time you use the equation. The memory used by a single variable is 15 bytes plus a byte for each character in the variable.

Solve catalog function keys

Solve Catalog Function Keys

Key Label	Description
Insert (F2)	Inserts a blank row above the highlighted row. This row is ready to accept your new name and your new equation.
Delete (F3)	Deletes highlighted name, highlighted equation and/or its variables, or a blank row.
Find (F4)	Searches names or equations (whichever field is highlighted) for specified characters. See *Searching for specific text* in chapter 1 for details.
Edit (F6)	Allows you to edit highlighted name or equation. Also allows you to view long equations.
1-2-3 (F8)	Displays the Solve 1-2-3 screen. Allows you to "back-solve" a 1-2-3 worksheet; that is, make a cell containing a formula equal to a desired value by solving for a specified input cell.

Calc	([F9])	Verifies the equation or expression and selects the solve calc screen.
Plot	([F10])	Displays function plotting.

Using multiple equation lists

The Calculator Solver application enables you to manage different equation lists using the standard File commands.

Use [MENU] [F] [C] (File Copy) to copy an equation list to a new file. If you save the equation list using an existing file name, the new file will overwrite the old file.

Use [MENU] [F] [O] (File Open) to open an existing equation list file.

Use [MENU] [F] [N] (File New) to create a new, empty equation list.

Use [MENU] [F] [M] (File Merge) to merge another equation list into your current list at the position of the highlight.

Using the solver in a 1-2-3 Worksheet.

A worksheet often contains a series of cells where all but one contain variable *values* (the variable *names* are the cell names), and where that one remaining cell contains the result of a formula calculation. The formula uses the other cell names as its variables, and the contents of those other cells are the values for those variables.

Normally, the values in the variable cells are entered first, then the formula cell calculates the result. The Solve Catalog's 1-2-3 feature (**1-2-3**) allows this calculation order to be reversed. Rather than have the formula-cell's value *calculated last*, it's *entered first*, and a *variable-cell's* value is *calculated last.* This variable cell is called the **solve cell**, and this method of calculating for that cell's value is called **backsolving**.

To calculate a 1-2-3 solve cell value that will produce a specified formula cell value:

Use 1-2-3 to create worksheet segment that includes a formula cell and the data cells representing all the variables used in the formula cell. Ensure that this worksheet is the current worksheet.

Enter values into all but one of the data cells. The remaining data cell is the solve cell.

Press ⌈⁺⁷⌉ ⌈MENU⌉ ⌈A⌉ ⌈S⌉ *(and press* ⌈ESC⌉ *one or more times, if necessary) to display the Solve Catalog.*

Press `1-2-3` *(* ⌈F8⌉ *) to display the calculator's Solve 1-2-3 screen.*

Press `For` *(* ⌈F8⌉ *) to display the current 1-2-3 worksheet.*

Move the cursor to highlight the formula cell.

Press ⌈ENTER⌉ *to define that cell as the formula cell and to return to the calculator's Solve 1-2-3 screen.*

Type the value of the result you want that formula cell to calculate and press `VALUE` *(* ⌈F9⌉ *).*

Press `Solve` *(* ⌈F10⌉ *) to display the current 1-2-3 worksheet.*

Move the cursor to highlight the data cell you choose to be the solve cell—the cell whose value is to be determined.

Press ⌈ENTER⌉ *to define that cell as the solve cell and to return to the calculator's Solve 1-2-3 screen. The cell's value is calculated, displayed in the Solve 1-2-3 screen, and entered in the worksheet.*

To restore the solve cell to its previous value:

Press `Undo` (⌈F5⌉). The solve cell is restored to the value it had just before the last backsolve took place.

To set up a solver worksheet:

*Write down your chosen formula (like DISTANCE = RATE * TIME), then convert it to an expression by subtracting the right side from the left (like RATE * TIME – DISTANCE).*

Reserve a set of adjacent 1-2-3 cells, one for for each variable in your expression and the last one (the formula cell) for the expression itself.

Enter the expression into the formula cell.

Press ⌈⁺⁷⌉ ⌈MENU⌉ ⌈A⌉ ⌈S⌉ *(and press* ⌈ESC⌉ *one or more times, if necessary) to display the Solve Catalog.*

Press `1-2-3` *(* ⌈F8⌉ *) to display the Solve 1-2-3 screen.*

Press `For` *(* ⌈F8⌉ *)to display the current 1-2-3 worksheet.*

Move the cursor to the formula cell.

Press ⌈ENTER⌉ *to define that cell as the formula cell and to return to the calculator's Solve 1-2-3 screen.*

Type ⌀ *as the result you want that cell to calculate and press* `VALUE` *(* ⌈F9⌉ *). Your solver worksheet is now ready to be used.*

To use a solver worksheet:

This procedure starts with the worksheet set up as described in the above procedure *To set up a solver worksheet:*. This worksheet is now the current worksheet. You know the values of all but one of the variables, and you'll use this solver worksheet together with the Calculator's Solve 1-2-3 screen to solve for that unknown.

If the Solve 1-2-3 screen is not displayed, display the Solve Catalog, then press `1-2-3` *(* `F8` *).*

Press `12₃` *to display the solver worksheet.*

Enter values into all but one of the variable's cells.

Move the cursor to the unknown variable's cell.

Press `x̄7` `F10` `ENTER` *and see the solution in the calc line labeled* `Solve result`*. If the expression in the worksheet's formula cell does not evaluate to zero exactly, that cell will contain a very small number.*

To solve for another variable, repeat these steps.

Example: Creating and Using a Solver Worksheet. This example demonstrates how to set up the solver worksheet and how to use it.

The equation used in this example is `RATE * TIME = DISTANCE`. The solver worksheet uses expressions, not equations, so forming left – right gives the expression `(RATE * TIME) - DISTANCE`. If you want to press keys as you follow this example, create the worksheet shown in the following figure. Cells B3, B4, and B5 contain values only; no formulas. Cell B8 contains the formula `+B3*B4-B5`. When the example starts, this worksheet is the current worksheet.

```
                    A                 B         C         D
1
2
3    RATE                          40.00
4    TIME
5    DISTANCE                     100.00
6
7
8    RATE * TIME - DISTANCE       -100.00
9
10
11
12
13
15-Nov-93  08:46 AM                                    CAPS
```

Keys:	Description:
1²₃	Displays the solver worksheet containing the formula (RATE * TIME) − DISTANCE in cell B8.
highlight cell B3	Move the cursor to cell B3.
40 ▼ ▼ 100	Enters 40 miles per hour into B3 and 100 miles into B5.
▼ ▼ ▼	Moves the cursor to cell B8.
±/x⁷ MENU A S	Displays the Solve Catalog. You may have to press ESC one or more times.
1-2-3 (F8)	Displays the Calculator's 1-2-3 screen.
For (F8)	Displays the current 1-2-3 worksheet. The cursor highlights cell B8, the formula cell.
ENTER	Defines B8 as the formula cell and returns to the Calculator's 1-2-3 screen.
0 **VALUE** (F9)	Enters the value the formula cell is to calculate.
Solve (F10)	Displays the worksheet. The formula cell, B8, is highlighted.
▲ *(4 times)*	Highlights cell B4, TIME. This is the cell whose value is to be calculated to force cell B8 to

equal zero.

ENTER   Defines B4 (TIME) as the solve cell and returns to the solve 1-2-3 screen. The calculation is performed and the display shows 2.5 hours (the `Solve result`) as the time required to cause RATE ∗ TIME – DISTANCE (B8) to equal zero. If you return to the worksheet, you'll see that B8 now contains 0.

How the solver works

Initially, the Solver tries to find a *direct* solution by rearranging the equation and then solving for the variable. If the Solver finds a direct solution, the Calculator displays the answer on the calc line, and no other information is displayed.
If the Solver is unable to find a direct solution, the Solver tries to find an *iterative* solution. This involves searching for the answer by estimating a set of answers, seeing how close they are to a solution, and then making another set of estimates. The Calculator displays the current estimates ("guesses") while the Solver is searching for an answer iteratively. You should keep in mind that *there may be more than one solution to an equation*, and that it may be necessary for you to enter guesses in order to influence which solution the Solver finds.
Since the process of finding an iterative solution is very complex, there are four possible outcomes that you should be aware of:
The Calculator displays an answer but displays no message. It is very likely that the Solver has found a solution. The Calculator may display additional information if you repeat the calculation by pressing the function key for the variable you solved for.
The Calculator displays an answer and automatically displays a message. The Solver has found a possible solution, but you

must use judgement in interpreting the results.

The Calculator displays `Try again. Bad guesses.` This indicates that the Solver cannot begin the search with the current guesses. See the following section *Entering guesses*.

The Calculator displays `Solution not found` because the Solver was unable to find a solution. Check to see if your equation and stored values are correct. If the equation is correct, you may be able to find a solution by entering very good guesses.

Halting and restarting an iterative search

When the Solver is searching for an iterative solution, you can halt the calculation by pressing any key. The Calculator displays the best estimate the Solver has found so far, and the message `Interrupted`. You can restart the search from where it left off by pressing the function key for the variable you are solving for. Or, you can restart the search using your own guesses.

Entering guesses

Entering your own guesses serves two purposes. First, it can save time by telling the Solver where to start searching. Second, if more than one solution exists, entering guesses can help the Solver select the answer you want. You can enter guesses in the Solve Calc screen at these times:

Before beginning the calculation, after you've stored a value for every variable except the unknown variable.

After you've halted the iterative search.

After the Solver has returned an answer, and you want to begin searching for another answer somewhere else.

You can enter one or two guesses. If you enter one guess, the Solver makes a second guess. If you enter two guesses, the Solver starts searching for a solution in the range between the two guesses.

To enter guesses:

To enter only one guess, key in the value and press the function
  key for the variable twice.
To enter two guesses, key in the first guess and press the
function key once, and then key in the second guess and press
the function key twice.

Rules for writing equations

The rules for writing equations use several terms:
Variables are the named items for which you store or calculate
  values.
Constants are numbers—for example, $10,000, 360 days.
Operators perform arithmetic—for example, $*$ and $-$.
Functions do calculations using mathematical capabilities built
into the Solver—for example, SQRT(x), USPV($i \%,n$), and
DDAYS(*d1,d2,cal*).

Length of equations

An equation cannot exceed 2279 characters and cannot contain
more than 256 different variables. There are no other limits as
long as there is sufficient memory to store it.

Variable names

Solver variable names can be a maximum of 15 characters long
and must be all one word (no spaces allowed). The following
characters are not allowed in variable names: +, −, $*$, /,^, (,), <,
>, =, :, ;, !, {, }, [,], and |. Also, the character currently defined
as argument separator (, in US mode and . in European mode)
is not allowed in variable names. You cannot use NOT, AND,
OR, or XOR as variable names, nor can you use the names of
functions that have no arguments as variable names. A variable
name cannot begin with a number. Variable names are case
sensitive.

The first seven characters of the variable names become function key labels. Therefore, make sure no two variables have the same first seven characters.

Constants

Constants must be keyed in as numbers without digit separators or other characters.

Functions

An equation can contain any of the functions shown in the *Solver functions* table later in this chapter. Functions are built-in shortcuts to creating complex expressions.

Operators, parentheses, and the order of calculations

When necessary, use parentheses to control the order of calculations. Without parentheses, the Solver does calculations using the same rules as those used by an algebraic calculator. These rules are:

Functions first

For example, when solving for *D* in the equation `A*SQRT(B+C)=D`, the Solver calculates and then multiplies the answer by *A*.

Exponentiation before multiplication and division

For example, an equation typed in as `A*B3=C` is interpreted as $A \times B^3 = C$. *B* is raised to the 3rd power and *then* multiplied by *A*. To raise *A x B* to the

3rd power, write the equation: `(A*B)^3=C`.
Multiplication and division before addition and subtraction
For example, an equation typed in as `A+B/C=12` is interpreted as:

To divide the sum *A* + *B* by *C*, type the equation: `(A+B)/C=12`.
You cannot use parentheses for "implied" multiplication. For example, an equation printed in a book as *Psb{SN}=Psb S(1-F)* can be typed into the Solver as `PSN=PS*(1-F)`. The `*` sign must be inserted between `PS` and the parenthesis.

Date formats

The functions CDATE, DATE, and DDAYS, either return a date or use one or more dates as arguments. The format in which these dates are expressed depends on the date format set in the Setup Utility. The formats shown in the second and third columns give the Calculator date formats shown in the first column.

Date Formats: Calculator vs. Setup Utility

Calculator		Setup Utility	
DD.MMYYYY	(DD-MMM-YY)		(DD-MMM)
	(MMM-YY)		(DD/MM/YY)
	(DD.MM.YY)		(DD/MM)
	(DD.MM)		
MM.DDYYYY	(MM/DD/YY)		(MM/DD)
YYYY.MMDD	(YY-MM-DD)		(MM-DD)

Note that you won't see the entire date in the display unless you've set the number format to be All or Fixed Point with 6 digits. To change the format press MENU O N and fill out the Number Format dialog box.

Solver functions

The table on the following pages lists the Solver functions. Lowercase characters in parentheses stand for numbers, variable names, or numeric expressions that the functions use to do their calculations.

Solver Functions

Function	Description
ABS(x)	Absolute value.
ACOS(x)	Arc cosine. [1]
ALOG(x)	Common (base 10) antilogarithm; 10^x
ANGLE(x,y) [2]	Returns polar coordinate angle $\angle$ given (x,y) rectangular coordinates. [1]
ASIN(x)	Arc sine. [1]
ATAN(x)	Arc tangent. [1]
CALCCELL (*input list*, *output range*, *row*, *col*) [2]	You can specify *row*, *col*, just *row*, or neither. *input list* is zero or more inputs to the worksheet of the form: [*expr*, *range*, *row*, *col*]. For each input, the expression is evaluated and stored in the appropriate cell in the worksheet. Then the worksheet is recalculated, and the value of the output cell is returned.
CDATE	Current date. [3]
COMB(x,y)	Number of combinations of x items taken y at a time.
COS(x)	Cosine. [1]
CPCOL	Returns the worksheet column number of the current cell pointer.
CPROW	Returns the worksheet row number of the current cell pointer.
CTIME	Current time in HH.MMSS, 24-hour format.
DATE(*date,n*)	The date n days after (when n is positive) or before (when n is negative) the specified *date*. [3]

Uses the current angle mode—degrees, radians, or grads. To change the angle mode, press MENU O M*.*
Uses the current argument separator when keying in formulas.
Uses the current date format, DD.MMYYYY, MM.DDYYYY, or YYYY.MMDD. See the

Solver Functions (continued)

Function	Description
DDAYS(*d1,d2,cal*)	The number of days between dates *d1* and *d2*.[1] *cal* designates the calendar: *cal*=1 for the actual calendar, which recognizes leap years. *cal*=2 for the 365-day calendar, which ignores leap years. *cal*=3 for the 360-day calendar, which uses 12, 30-day months.
DEG(*x*)	Converts *x* in radians to decimal degrees.
EXP(*x*)	Natural antilogarithm; e^x.
EXPM1(*x*)	$e^x - 1$.
FACT(*x*)	Factorial; *x* is an integer 0.
FLOW(*filename, row*)	The specified cash flow from the specified cash-flow file. The file name must be entered *without* a DOS path and file extension. The CFL extension and the current path from the Cash Flows application are assumed.
FP(*x*)	Fractional part.
FV(n,i %yr,pv, pmt,p/yr,m)	TVM function for FV.[2]
*G(*var*)*	The GET function returns the contents of *x*.
HMS(*x*)	Converts *x* in decimal hours (degrees) to H.MMSS (D.MMSS) format.
HR(*x*)	Converts *x* in H.MMSS (D.MMSS) format to decimal format.
IDIV(*x,y*)	Integer part of the quotient $x \div y$.
IF(*con,alg1,alg2*)	If conditional expression *con* is true, use algebraic expression *alg1*; otherwise, use *alg2*. IF is discussed later in this chapter.

Uses the current date format, DD.MMYYYY, MM.DDYYYY, or YYYY.MMDD. See the earlier section Date formats.

Solver Functions (continued)

Function	Description
INT(*x*)	The greatest integer less than or equal to *x*.
INV(*x*)	Reciprocal, 1/*x*.
IP(*x*)	Integer part.
ITEM(*filename, row,col*)	Returns the value of the designated statistics data (from a .STA file). If you don't specify a column, it defaults to 1.[1]
I%YR(*n,pv,pmt, fv,p/yr,m*)	TVM function for *I %YR*.[2]
L(*var,alg*)	The LET function evaluates the algebraic expression *alg*, stores the result in *x*, and also returns that result as the value of the L function.
LENGTH(*range*)	Returns the number of worksheet rows in the given range.
LN(*x*)	Natural (base e) log of *x*.
LNP1(*x*)	ln (1 + *x*).
LOG(*x*)	Common (base 10) log of *x*.
MAX(*x,y*)	Larger of *x* and *y*.
MIN(*x,y*)	Smaller of *x* and *y*.
MOD(*x,y*)	The remainder of the division $x \div y$; MOD(*x,y*) $x - y\textbf{x}$INT($x \div y$).
N(i %yr,pv,pmt, fv,p/yr,m)	*TVM function for N.*[2]
PERM(*x,y*)	Permutations of *x* items taken *y* at a time.
PI	π 3.141592653589793 (16 digits).
PMT(n,i %yr,pv, fv,p/yr,m)	*TVM function for PMT.*[2]
PV(n,i %yr,pmt,	

fv,p/yr,m)   *TVM function for PV.[2]*

RAD(*x*)   Converts *x* in decimal degrees to radians.

filename must be entered without a DOS path and extension. The current path and standard extension from the application are assumed.

See the section The TVM functions later in this chapter.

Function	Description
RADIUS(*x,y*)	Returns polar coordinate radius R given (*x,y*) rectangular coordinates.
RAN# or RAND	Pseudo-random number (0& <1).
RCLCELL (*range,row,col*)	You can specify *row* and *col*, just *row*, or neither. Returns the value of the designated worksheet cell.
RND(*x,y*)	*x* rounded to *y* decimal places (when 0*y*15) or to |*y*| significant digits (when –16*y*–1). When *y*=16, *x* is rounded to number of decimal places given by current display setting.
S(*var*)	*var* is a variable; S(*var*) is used with the IF function to create a set of function keys from more than one equation. (S is discussed later in this chapter.)
SGN(*x*)	Sign of *x* (+1 if *x*>0, 0 if *x*=0, –1 if *x*<0).
SIGMA (*cv,c1,c2,s,alg*)	Sums values of the algebraic expression (*alg*) for values of the counter variable (*cv*). *cv* starts with value *c1* and is incremented in steps of *s*, to a final value of *c2*. (SIGMA is covered in more detail later in this chapter.)
SIN(*x*)	Sine.[1]
SIZEC(*filename*)	Returns the last flow number in the specified cash-flow file.[2]
SIZES(*filename*)	Returns the number of statistics rows in the specified statistics-data file.[2]

Uses the current angle mode—degrees, radians, or grads. To change the angle mode, press [MENU] [O] [M]*.*

filename must be entered without a DOS path and extension. The current path and standard extension from the application are assumed.

Solver Functions (continued)

Function	Description
SPFV($i\ \%,n$)	Future value of a single $1.00 payment; equivalent to $(1+i\ \%\div100)^n$. n is the number of compounding periods, $i\ \%$ is the interest rate per compounding period, expressed as a percentage.
SPPV($i\ \%,n$)	Present value of a single $1.00 payment; equivalent to $1\div$SPFV($i\ \%,n$). n is the number of compounding periods. $i\ \%$ is the interest rate per compounding pe riod, expressed as a percentage.
SQ(x)	x^2
SQRT(x)	
STOCELL(*expr, range,row,col*)	You can specify *row*, *col*, just *row*, or neither. Evaluates the expression and stores the result in the designated worksheet cell. The worksheet is not recalculated.
#T(*filename, flownum,row*)	Group size of the specified cash flow in the specified cash-flow file.[1]
TAN(x)	Tangent.[2]
TRN(x,y)	x is truncated to y decimal places (when $0y15$) or to $|y|$ significant digits (when $-16y-1$). When y equals 16, x is truncated to the number of decimal places given by the current display setting.
USFV($i\ \%,n$)	Future value of a uniform series of $1.00 payments; equivalent to (SPFV($i\ \%,n$)-1) $\div$ ($i\%\div100$). n is the number of payments. $i\ \%$ is the periodic interest rate, expressed as a percentage.

filename must be entered without a DOS path and extension. The current path and standard extension from the application are assumed.

Uses the current angle mode—degrees, radians, or grads. To change the angle mode, press MENU O M.

Solver Functions (continued)

Function	Description
USPV($i\ \%,n$)	Present value of a uniform series of $1.00 payments; equivalent to USFV($i\ \%,n$) ÷ SPFV($i\%,n$). n is the number of payments. i % is the periodic interest rate, expressed as a percentage.
WIDTH(*range*)	Returns the number of worksheet columns in the given range.
XCOORD($R,∡$)	x-coordinate of polar coordinates. Uses the current angle mode—degrees or radians.
YCOORD($R,∡$)	y-coordinate of polar coordinates. Uses the current angle mode—degrees or radians.

Typing aids for solver functions

Solver functions may either be typed in or entered with the help of function keys. For example, when you're entering an equation and want to use the function PMT, you can press **Fin** **PMT** to display PMT(,,,,,). The commas (argument separators) and parentheses are displayed as well as the three letters. As you type in the arguments to the function, use ▶ to skip over the commas and parentheses. After entering the function, press ESC to display the previous set of function keys.

Here are the function keys in the solve editor that give you typing aids.

Solve Editor Function Keys

Key Label Description

Math Provides typing aids for RND, IP, FP, ABS, LN, EXP, LOG, ALOG, SQRT, SQ, INV, TRN,

> LNP1, EXPM1, IDIV, INT, MOD, MIN, MAX, SGN, SIGMA.

`Trig` Provides typing aids for PI, SIN, COS, TAN, ASIN, ACOS, ATAN

`Conv` Provides typing aids for DEG, RAD, HR, HMS, XCOORD, YCOORD, RADIUS, ANGLE, CTIME, CDATE, DATE, DDAYS.

`Prob` Provides typing aids for COMB, PERM, FACT, RAN#.

`Fin` Provides typing aids for N, I%YR, PV, PMT, FV, SPFV, SPPV, USFV, USPV.

`Other` Provides typing aids for STOCELL, RCLCELL, CALCCELL, LENGTH, WIDTH, CPCOL, CPROW, IF, OR, XOR, AND, NOT, S, L, G.

`NUM→` Inserts into the editor the last number or other operand displayed in the calc line. The number is inserted in full precision.

→Conditional expressions (IF function)

Equations can include conditional expressions using the IF function. For example, the Solver accepts the equation: `BONUS=IF(SALES>3000,.02*SALES,.01*SALES)`. The two commas inside the parentheses stand for "THEN" and "OR ELSE." According to this equation, if *SALES* is greater than 3000, then *BONUS* equals .02 x *SALES*; otherwise, *BONUS* equals .01 x *SALES*.

In general, the form of the IF function is:

IF(*conditional expression* , *algebraic expression* , *algebraic expression*)

A conditional expression can also be an algebraic expression. If the algebraic expression evaluates to zero, it is interpreted as false. Otherwise, true. For example, if A equals – 1 in the algebraic expression A+1, the expression is false. If A equals

any other number, the expression is true.

The logical and relational operators that can be used in conditional expressions are described in the table below:

Operators Used in Conditional Expressions

Logical Operators: NOT, AND, OR, XOR

Relational Operators: > Greater than & < Less than

= Equal to

> = Greater than or equal to

<= Less than or equal to

<> Not equal to

Order of logical operations

Logical operations are done after arithmetic operations (addition, subtraction, etc.). For example, the expression:

A+1 OR B=5

is true if A<>–1 and/or B=5. The expression is false only if A=–1 and B <>5.

When there are two or more, they are done in the order NOT first, then AND, and finally OR or XOR. Thus, the expression:

A=360 AND B=12 OR A=365

is true if A equals 360 and B equals 12, or if A equals 365. Here are several examples of equations using conditional expressions:

Equation: `B=IF(7<A AND A<=15,2*A/6,3*A+10)+C`
Meaning: If A is greater than 7 and less than or equal to 15, then B=(2xA÷6)+C. Otherwise, B=(3xA+10)+C.

Equation: `VALUE=FIRST+IF(NOT FIRST=0,1/FIRST,0)`
Meaning: If FIRST is unequal to 0, then VALUE=FIRST+ (1÷FIRST). If FIRST=0, then VALUE=FIRST.

Equation: `T=W*IF(A=0 XOR B=0,A+B,A*B)`
Meaning: T=Wx(A+B) if A or B, but not both, equals 0. Otherwise, T=WxAxB. In other words,

When A=0 and B0, T=WxB
When A0 and B=0, T=WxA
When A=0 and B=0, T=0
When A0 and B0, T=WxAxB.

Creating function keys for multiple equations (S function)

The S (solving for) function is used with the IF function to group equations and to specify the conditions where one or the other is used. For example, consider these equations for calculating gross pay:

Wage pay based on an hourly wage: *Salary* pay based on a fixed salary plus a 5% sales commission:

`WPAY=WAGE*HRS    SLPAY=SALRY+.05*SALES`

where:

> *WPAY* = gross wage pay.
> *WAGE* = hourly wage.
> *HRS* = hours worked.   where:
> *SLPAY* = gross salary pay.
> *SALRY* = the fixed salary.
> *SALES* = sales.

To use the S function, the equations must first be rearranged to place 0 on one side of each equation:

`WPAY-WAGE*HRS=0`
`SLPAY-SALRY-.05*SALES=0`

To create one set of function keys that can be used for either equation:

`IF(S(WPAY),WPAY-WAGE*HRS,SLPAY-SALRY-.05*SALES)=0`

> `IF(S(WPAY)` **tests the condition: Solving for WPAY?**
>
> **If the condition is true, the expression** `WPAY-WAGE*HRS` **is used.**
>
> **If the condition is false, the expression** `SLPAY-SALRY-.05*SALES` **is used.**

The `=0` ***ending is optional. If it's omitted, =0 is implied.***

The S function appears within the IF function in the conditional expression. In this case, the conditional expression is true if you solve for *WPAY*, and false if you solve for anything else. The algebraic expressions in the IF function are the two equations, rewritten to gather all the terms on one side of the equation, so that each expression is equal to 0.

The IF function can be set equal to an expression common to both equations. For example, the equations `X+Y+(10/A)=Z` and `Q+R+(10/A)=T` can be combined to `IF(S(X) OR S(Y) OR S(Z),X+Y-Z,Q+R-T)=-10/A`. Note that the Solver uses the second equation when solving for *Q*, *R*, *T*, or *A*.

The TVM functions

The five Solver TVM functions allow you to write equations that do calculations analogous to the calculations done in the TVM Calculator application:

N (		*i%yr,*	*pv,*		*pmt,*	*fv,*	*p/yr,*				*m*)
I%YR (		*n,*	*pv,*		*pmt,*	*fv,*	*p/yr,*				*m*)
PV (	*n,*	*i %yr,*	*pmt,*	*fv,*	*p/yr,*						*m*)
PMT (	*n,*	*i %yr,*	*pv,*	*fv,*	*p/yr,*						*m*)
FV (	*n,*	*i %yr,*	*pv,*	*pmt,*	*p/yr,*						*m*)

Each function calculates one TVM value, given the values for all the others. For example, the first function calculates N (the total number of payments or compounding periods), given the annual percentage interest rate, present value, payment amount, future value, number of payments per year, and the Begin/End mode.

The parameters of the functions (the contents of the parentheses) are defined identically (with one exception) to the TVM application's variables. The exception is that *m* stands for the Begin/End mode (**B/E**). Use *m*=1 for Begin mode,

m=0 for End mode.

You can give the parameters any legal variable name; for example you can use *LOAN* in place of *pv*. Parameters can also be algebraic expressions. For example, the following equation calculates the monthly payment for a car loan:

`CARPMT=PMT(MONTHS,I%YR,PRICE-DOWN,0,12,0)`

> `MONTHS` *is the number of monthly periods (n).*
> `DOWN` *is the down payment.*
> `PRICE` *is the purchase price.*
> `PRICE-DOWN` *is the present value (pv).*
> *The first* `0` *is the final value (fv).*
> `12` *is the payments/year (p/yr).*
> *The final* `0` *specifies End mode.*

Notice that `PMT` is *not* a variable in the equation—it is the name of the function.

The Solver TVM variables are not shared with the variables in the Calculator's TVM application. For example, the variable *I %YR* in. the *CARPMT* equation is separate from the TVM variable *I %YR*.

The summing function (SIGMA)

The SIGMA function provides the ability to do a variety of summing operations. The function has the form:

SIGMA(*counter variable*, *starting value*, *ending value*, *step size*, *algebraic expression*)

The **counter variable** takes on a series of values, beginning with the **starting value**, and incrementing according to the **step size**, until it passes the **ending value**. For each value of the counter, the **algebraic expression** is evaluated, and the value is added to the previous value. The function returns the final summation. The counter variable is not represented by a function key.

The following equation contains a counter *I* and two other variables, *X* and *THESUM*:

```
THESUM=SIGMA(I,1,6,1,I*X)
```
The counter *I* runs from 1 through 6 in steps of 1—that is, 1, 2, 3, 4, 5, 6. For each value of *I*, *I* x *X* is calculated and added to the sum. If you store 3 in *X* and then solve for *THESUM*, the Solver calculates *THESUM* = 63; that is, 3 + 6 + 9 + 12 + 15 + 18.

Examples of solver equations

Simple annual interest

The following equation calculates the amount due for a loan with simple annual interest, given the duration of the loan. Both the principal and interest are paid in a lump sum at the end of the loan period. This LOAN,DAYS equation assumes a 365-day calendar basis.
```
DEBT = LOAN + LOAN * I% / 100 * DAYS / 365
```
where

> *DEBT = the total owed at the end of the loan period.*
> *LOAN = the original amount (principal) lent.*
> *I % = the annual interest rate as a percent.*
> *DAYS = the number of days of the loan.*

If you know the dates for the course of the loan, rather than the number of days, use this LOAN,DATES equation:
```
DEBT = LOAN + LOAN * I% / 100 *
DDAYS(DATE1,DATE2,IF(BASIS=365,1,3)) / BASIS
```
where

> *DATE1 = the date the loan commences.*
> *DATE2 = the date the loan ends.*
> *BASIS = 360 for a 360-day basis.*
> *BASIS = 365 for a 365-day basis.*

Example: Simple Interest for a Specified Number of Days. You lend a friend $450 for 60 days, charging 7% simple annual interest (calculated on a 365-day basis). What is the total amount he will owe you in 60 days?

Starting from the solve calc screen for the LOAN,DAYS
equation,

Keys:	Description:
450 **LOAN**	Stores loan amount.
7 **I%**	Stores interest rate.
60 **DAYS**	Stores term of loan.
DEBT	Calculates $455.18 due in 60 days.

Example: Simple Interest From the Dates of the Loan. On March
26, 1992, you borrow $1,200 from a relative. You promise to
repay the loan, with 8% simple interest (to be calculated on a
365-day basis), on June 12, 1993. How much will you owe?
Starting from the solve calc screen for the LOAN,DATES
equation,

Keys:	Description:
1200 **LOAN**	Stores loan amount.
8 **I%**	Stores interest rate.
3.261992 **DATE1**	Stores date of loan (assumes current date format is MM.DDYYYY).
6.121993 **DATE2**	Stores repayment date.
365 **BASIS**	Stores calendar basis.
DEBT	Calculates $1,316.52 to be repaid.

Advance payments (leasing)

Occasionally payments are made in advance, such as in leasing.
Leasing agreements sometimes call for the extra payments to
be made when the transaction is closed. A residual value
(salvage value) can also exist at the end of the normal term.
The following equation named ADV calculates the monthly
payment and the annual yield when one or more payments are
made in advance. It can be modified to accommodate periods

other than monthly by changing the number 12 to the appropriate number of payment periods per year.

```
PMT=(-PV-FV*(SPPV(I%YR/12,N)))/
(USPV(I%YR/12,N-#ADV)+#ADV)
```

where

PMT = the monthly payment amount.
PV = the value of the equipment.
FV = the residual value.
I %YR = the annual interest rate as a percent.
N = the total number of payments.
#ADV = the number of advance payments.

Example: Leasing With Advance Payments. Equipment worth $750 is leased to you for 12 months. The equipment is assumed to have no salvage value at the end of the lease. You agree to make three payments at the time of closing. What is the monthly payment if the annual interest rate is 10%? Starting from the solve calc screen for this example's equation,

Keys:	Description:
750 **PV**	
12 **N**	
0 **FV**	
3 **#ADV**	
10 **I%YR**	Stores known values.
PMT	Calculates a $64.45 monthly payment.

Discounted notes

A note is a written agreement to pay the buyer of the note a sum of money plus interest. Notes do not have periodic coupons, since all interest is paid at maturity. A discounted note is a note that is purchased below its face value. In the following two equations, the calendar basis is actual/360. To find the price given the discount rate, use the following NOTE,PRICE equation:

`PRICE=RV-(DISC*RV*DDAYS(SETT,MAT,1)/36000)`

To find the yield given the price (or to find the price given the yield), use the NOTE,YIELD equation:

`YIELD=(RV-PRICE)/PRICE*36000/DDAYS(SETT,MAT,1)`

where

PRICE = the purchase price per $100 face value.
YIELD = the yield as an annual percentage.
RV = the redemption value per $100.
DISC = the discount rate as a percent.
SETT = the settlement date (in current date format).
MAT = the maturity date (in current date format).

Example: Price and Yield of a Discounted Note. What are the price and yield of the following U.S. Treasury Bill: settlement date July 16, 1991; maturity date December 17,1991; discount rate 8.7%? (Assume MM.DDYYYY format.)

Starting from the solve calc screen for the NOTE,PRICE equation,

Keys:	Description:
7.161991 **SETT**	
12.171991 **MAT**	
8.7 **DISC**	
100 **RV**	Stores known values
PRICE	Calculates a price of $96.28.

Starting from the solve calc screen for the NOTE,YIELD equation,

YIELD	Calculates a 9.04% yield.

Moving average

Moving averages are often used to predict trends in data over time. In moving average calculations, a specified number of values are averaged. Each time a new value is acquired, the oldest is discarded.

The following Solver equation named MOVAVG calculates the moving average of data stored in a 1-2-3 worksheet.

MAVG=SIGMA(I,MAX(1,LAST-N+1),LAST,1,RCLCELL (*name*,I))/MIN(LAST,N)

where

    N = the number of values averaged in each calculation.
    LAST = the entry number of the most recent value to be averaged.
    name = the range name of the first data cell.

Example: Moving Average. Calculate a three-month moving average for the number of units manufactured during the first half of the year. Manufacturing volumes were:

January	February	March	April	May	June
4400	5360	2900	3670	4040	3200

If you want to preserve the current worksheet, save it to a file before you erase it.

Keys:	Description:
12̱₃	Starts 1-2-3.
MENU W E Y	Erases the worksheet and moves to cell A1.
MENU RNCVOL ENTER	Creates the range name VOL for cell A1.

ENTER	Names first cell of data range.
4400 ▼	
5360 ▼	
2900 ▼	
3670 ▼	
4040 ▼	
3200 ▼	Enters data.

$\boxed{\tfrac{+}{x} \tfrac{}{/}}$ $\boxed{\text{MENU}}$ $\boxed{\text{A}}$ $\boxed{\text{S}}$ $\boxed{\text{FN}}$ $\boxed{\blacktriangleright}$ Displays Solve Catalog and highlights bottom of equation list. If the Solve Catalog screen is not displayed, press $\boxed{\text{ESC}}$ one or more times.

Now type the MOVAVG equation, substituting VOL for *name*, and press ($\boxed{\text{F9}}$) to display the solve calc screen. Then,

Keys:	Description:
3 ▮ **N** ▮	Stores number of points.
3 ▮ **LAST** ▮	Stores entry number of last entry to be averaged.
▮ **MAVG** ▮	Calculates an average of 4,220.00 for months 1, 2, and 3.
4 ▮ **LAST** ▮	"Moves" *LAST* down one entry.
▮ **MAVG** ▮	Calculates an average of 3,976.67 for months 2, 3, and 4.
5 ▮ **LAST** ▮	"Moves" *LAST* down one entry.
▮ **MAVG** ▮	Calculates an average of 3,536.67 for months 3, 4, and 5.
6 ▮ **LAST** ▮ ▮ **MAVG** ▮	Calculates an average of 3,636.67 for months 4, 5, and 6.

Simulating a toss of dice

The Solver random number function RAN# can simulate the toss of one or more six-sided dice. The equation

TOSS=IP(RAN#*6+1)

generates integers in the range 1 through 6. Similarly,

TOSS=IP(RAN#*6+1)+IP(RAN#*6+1)

simulates the toss of two dice and gives the sum of both.

Type the equation for the appropriate number of dice and press ($\boxed{\text{F9}}$).
*Press ▮ **TOSS** ▮ as many times as desired to see the results of the tosses.*

Distance between two locations

The following Solver equation calculates the approximate statute miles between two places, given their longitudes and latitudes. The longitudes and latitudes are entered in degrees-minutes-seconds format (D.MMSS); South Latitude and East Longitude are negative numbers. The Calculator must be in Degrees mode.

```
DISTANCE=69.0466*ACOS(SIN(HR(LT1))
*SIN(HR(LT2))+COS(HR(LT1))*
COS(HR(LT2))*COS(HR(LG1)-HR(LG2)))
```

where

> *LG1, LT1 = the longitude and latitude of the first place.*
> *LG2, LT2 = the longitude and latitude of the second place.*

Example: Calculating the Distance Between Two Places. Find the statute miles between Philadelphia, Pennsylvania (40º35'N, 75º10'W) and Corvallis, Oregon (44º35'N, 123º16'W).

If the RAD or GRAD annunciator is displayed, press MENU O M and select Degrees angle mode.

Starting from the solve calc screen for this example's equation,

Keys:	Description:

40.35 **LT1**

75.10 **LG1**   Stores latitude and longitude for Philadelphia.

44.35 **LT2**

123.16 **LG2**   Stores latitude and longitude for Corvallis.

DISTAN   Calculates the distance to be 2,425.31 statute miles.

Finding several solutions to an equation

Example: Solving A Cubic Equation. The equation $x^3 - 5x^2 = 10x - z$ can have more than one solution for x. The Solver can find each solution or root using function plotting. The procedure below shows one way to do this.

You'll plot this equation for a particular value of z.

Select MENU A S *to display the Solve Catalog. If necessary, press* ESC *one or more times.*

Type x^3-5*x^2=10*x-z *into the solve editor and press* F10*.*

Press **Calc** *(* F9 *) to enter the expression into the equation list and display function key labels for x and z.*

Type 20 and press **z** *(* F3 *) to assign the value 20 to z.*

Press ESC *to display the Solve Catalog*

Press **Plot** *(* F10 *) to display the function plotting screen.*

Press MENU C D *to set the function-plotting conditions to initial values.*

Press **Auto** *(* F3 *) to auto-plot the equation. YMIN and YMAX will be chosen to ensure that the curve is shown on the screen.*

Function plotting accepts both equations and expressions, but it converts equations into expressions before plotting by subtracting the right side of the equation from the left side. So the graph you see is actually a plot of $x^3 - 5x^2 - 10x + 20$ against values of x.

Your screen should look like this:
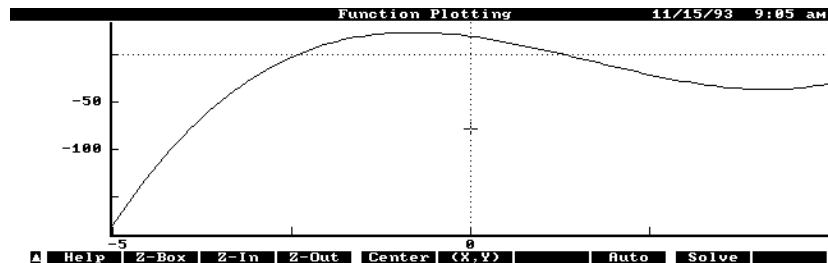
Press **Z-Out** *(F4) to zoom out five times and to show the curve crossing the x-axis three times (to show the three x-values where the expression equals zero).*

Start the definition of a zoom box by moving the cursor to the upper-left corner of an imaginary box that includes all three x-axis crossings (all three roots). To move the cursor by jumps, press an arrow key. To move the cursor by individual dots (pixels) on the screen, press and hold ⇧ while pressing an arrow key.

Press **Z-Box** *(F2) to fix this upper-left corner.*

Move the cursor to locate the lower-right corner of the zoom box. Your screen should look something like this:
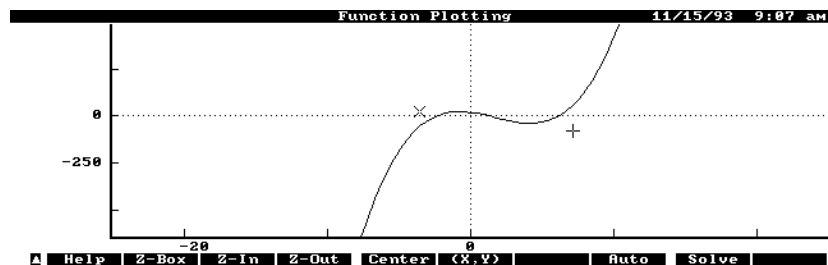
Press **Z-Box** *again to enlarge the boxed area to full-screen size.*

Move the cursor near the left root. Your screen should look something like this:

```
     -25        +

     -50


           -2.5              2.5
```
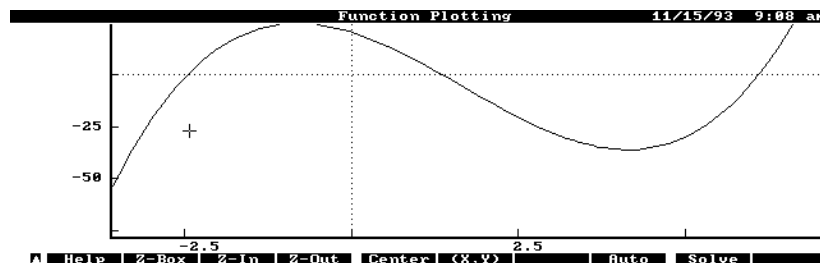
Press SPACEBAR. *You'll see the root: x = –2.44*

Find the other two roots in a similar way—move the cursor near each root and press SPACEBAR. *You'll see each of these roots displayed in turn:*

> *x = 1.34*
> *x = 6.10*

Press ESC ESC *to return to the Solve Catalog.*

Creating solver files on a PC or another editor

An equation list may be created using an editor outside of the Solve application. Each name/equation line entry is bounded by curly brackets. The vertical line (press ⇧ \\) is used to separate the name from the equation. If the line entry consists of a name only, the vertical line follows the name. If the line entry consists of an equation only, no vertical line is used. Consider the following to be the contents of a word processor or editor file. This file defines four lines of an equation list.

```
{Graph#1x^3-5*x^2-10*x+z}
{Note Price}
{y=sin(x)}
{Graph#2x^4-60*x^3-595*x^2-1770*x-1656}
```

When this file is retrieved or inserted into the equation list, the four added lines will look like this:

```
Graph#1     x^3-5*x^2-10*x+z

Note Price

            y=sin(x)
```

```
Graph#2    x^4-60*x^3-595*x^2-1770*x-1656
```

Function plotting

The Solver's function plotting lets you draw a graph and determine roots of an equation or mathematical expression. You can autoscale the graph so the curve is sure to appear in the display. You can also zoom in and zoom out to see more detailed or wider views of the graph, and you can display the coordinates of any point on the graph. The general procedures below are followed by an example that demonstrates the power and flexibility of Calculator function plotting.

To draw a graph:

Highlight an equation in the Solve Catalog.
Press **Plot** *(* F10 *).*
Press MENU C D *to set the plot conditions to their initial values. Or, if you know the range of interest, enter values for XMIN and XMAX—use* **XMIN** *(* F5 *) and* **XMAX** *(* F6 *).*
Press F3 *(Auto) to draw the graph.*

When you first use function plotting, the graph boundaries and the resolution have these values:

> *XMIN = –5.00*
> *XMAX = 5.00*
> *YMIN = –3.00*
> *YMAX = 3.00*
> *RES = 112.00*

Step 3 above resets the plot conditions to these initial values. Another approach to steps 3 and 4 is to set XMIN, XMAX, YMIN, and YMAX yourself and press **Dra** (F4).

To zoom in (to view a smaller region of the graph in more detail):

Do one of the following:

Press ⟨⇧⟩ `Z-In` (⟨F3⟩) or `Z-In` one or more
times. Each press of ⟨⇧⟩ `Z-In` zooms in by a factor
of 5 and autoscales the y-axis. Each press of
`Z-In` zooms in on both axes by a factor of 5.

Press ⟨X⟩ `Z-In` to zoom in just the x-axis, or press ⟨Y⟩
`Z-In` to zoom in just the y-axis.

Use an x, y zoom box.

Use the arrow keys to move the cursor to one corner of the area
you wish to expand.

Press `Z-Box` (⟨F2⟩).

Move the cursor to the diagonally opposite corner.

Press `Z-Box` again to enlarge the defined area to fill the entire screen.

Use an x, autoscale-y zoom box.

Move the cursor horizontally to an x-value that defines one end
of the x-range you want to expand.

Press `Z-Box` (⟨F2⟩).

Move the cursor horizontally to an x-value that defines the
other end of the x-range you want to expand.

*Press ⟨⇧⟩ `Z-Box` to enlarge the defined x-range to fill the entire screen
and autoscale the y-axis.*

To zoom out (to view a larger region of the graph in less detail):

Use ⟨⇧⟩ `Z-Out` (⟨F4⟩) or `Z-Out` to zoom out just
like you use `Z-IN` to zoom in.

To display the coordinates of any point on the screen:

Press `(X,Y)` one or more times until Coord is displayed
in the upper left corner of the display (coordinate mode is
active).

*Use the arrow keys or shifted arrow keys (hold down ⟨⇧⟩ and press the arrow
keys repeatedly) to select the point you want. Then read on the screen the
coordinates of that point.*

To display a function's value for any point on the

curve:

Press **(X,Y)** *one or more times until* `Trace` *is displayed in the upper left corner of the display (trace mode is active).*

Use the arrow keys or shifted arrow keys (hold down ⏶ *and press* ▶ *or* ◀ *repeatedly) to display the x-value you want. Then read on the screen the corresponding function value.*

To digitize a point's coordinates (to display the coordinates with full accuracy):

Move the cursor to the desired x-value, y-value, or point.
Do one of the following (the display will not change):

Press [X] [ENTER] to digitize the x-value.

Press [Y] [ENTER] to digitize the y-value.

Press both [X] [ENTER] *and* [Y] [ENTER], *in turn, to digitize a point.*

The coordinate or coordinates will be entered into the calculator's history stack. If you enter the x-coordinate first, the x-value will be in level 1 and the y-value in the calc line. To view these values, use [xy] *or press* [MENU] [A] [M] *to start the Math application.*

To solve for the roots of a function graphically:

Do one of the following:

Move the cursor to an XVAR value close to a root (where the curve crosses the x-axis). This locates an initial guess for the root. Often, zooming out helps to find all roots.

(Optional for cases where the root is not as easily found.) Press **Z-Box** to mark (x) the first guess, then move the cursor to another XVAR value to define a second guess. These two guesses should be on either side of the expected location of the root.

Press [SPACEBAR] *to display the value of the root. If a "questionable solution" is found (a gap, pole, etc.), a message is displayed to that effect followed by the "root" on the top line.*

Repeat the last two steps to solve for any additional roots.

To find the coordinates of an extremum (maximum or

minimum):

An extremum is a point on a graph where the sign of the curve's first derivative changes (where a graph shows a local maximum or minimum). This procedure shows you how to zoom in repeatedly on the area containing the extremum until your measurement of its coordinates achieves the desired accuracy.

If the extremum is not already visible, zoom out (press ⬛ `Z-Out`) until it's visible on the graph.

Press ⬛ `(X,Y)` one or more times to select trace mode.

Move the cursor to the point of the extremum to display its coordinates.

Define a tight "x, autoscale y zoom box" around the extremum by moving the cursor just to the left of the extremum and pressing `Z-Box` , and then moving cursor horizontally just to the right of the extremum and pressing ⬆ `Z-Box` . The smaller the x-range containing the extremum, the greater zoom you'll create.

Move the cursor to the point of the extremum.

> If these coordinates show the accuracy you want, you can move the coordinates of the extremum to the Calculator stack by pressing ⬛X⬛ [ENTER] ⬛Y⬛ [ENTER]—see the earlier procedure "To digitize a point's coordinates (to display the coordinates with full accuracy):".

> If you want more accurate coordinates, zoom in again (repeat steps 5 and 6) until they are accurate enough.

If the number of places used to display the coordinates prevents you from seeing the accuracy you want, you can usually show between 6 and 8 decimal places for each coordinate, depending on the sign of the mantissa and exponent. Press [MENU] [O] [N] and set the Number Format to Scientific and the Number of Digits to 6, 7, or 8, and then redraw.

Example: Finding the Roots of an Equation. This example shows how to find graphically the two roots of the equation $x^2 + 10x = 75$.

Keys:	Description:

Keys: **Description:**

[x̄ 7̄] [MENU] [A] [S]   Displays the Solve Catalog screen. If it's not displayed, press [ESC] one or more times.

[▶] [FN] [▶]   Ensures the highlight is at the end of the equation field.

x [^] 2 [+] 10 [*]   (The [^] key is [⇧] [ꟻ].)

x [=] 75   Enters the equation.

[F10]   Enters and highlights the equation in the Solve Catalog.

[F10]   Displays the function plotting screen.

[MENU] [C] [D]   Initializes the function plotting data. The plot-variable is x.

[F3]   Plots the equation as the expression x [^] 2 [+] 10 [*] x [–] 75. Note that the equation is converted to an expression by subtracting the right side from the left.

   The minimum and maximum x-values (the left and right boundaries) are those specified by XMIN and XMAX in the function plotting screen. The minimum and maximum y-values (the bottom and top boundaries) are chosen by the Auto function to ensure that the curve is displayed on the screen.

[ESC]   Returns to the function plotting screen. This screen shows that Auto set these values: YMIN = –105 and YMAX = 5.

Dra ([F4])   Redraws the graph.

```
  -50 —|                  +

  -75 —|


   |—————————————————————————————————————————
  -5                              0
```

⬆ Ⓕ   Zooms out and autoscales the y-axis in one
                operation. The range covered by the x-axis is
                increased by 5 times, and the y-axis range is
                automatically chosen (autoscaled) to ensure
                that the curve appears on the screen. Both
                roots are now shown (where the curve
                crosses the x-axis).

◄ *(8 times)* Moves the cursor to an x-value near the left root.
                The cursor position now locates an initial
                guess for this root. The initial guess is
                determined only by the x-value of the
                cursor's position, so there's no need to move
                the cursor to a y-value close to zero.

```
  400 —|       +

  200 —|

   |—————————————————————————————————————————
       -20                      0
```
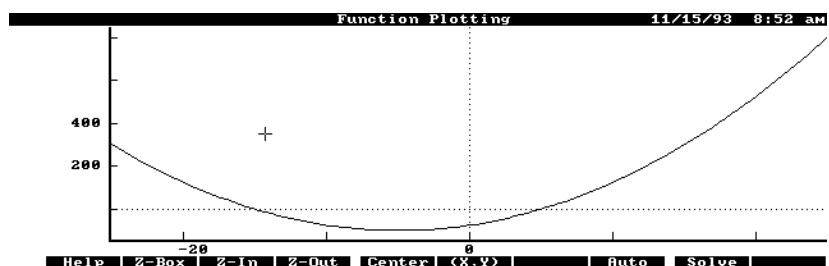
SPACEBAR   Solves for the left root and displays its value, –
                15.

| ▶ *(11 times)* | Moves the cursor to locate an initial guess for the right root. |
| SPACEBAR | Solves for the right root and displays its value, 5. |

How function plotting works

When a function is plotted, evenly spaced values of the plot variable are connected by straight lines. The number of these plotted points is determined by RES (resolution), the plot boundaries are given by XMIN, XMAX, YMIN, and YMAX, and the plot variable is given by XVAR. These values are shown in the screen that displays plot conditions.
A RES value of 10 means that the XVAR values between XMIN and XMAX are divided into 10 equal parts. If XMIN is -50 and XMAX is +50, the function would be plotted for x-values of -50, -40, -30, . . . +40, and +50, and each of these plotted points would be connected by straight lines to produce the graph.

Selecting the expression to plot

Every graph is a plot of a function versus an independent variable (the XVAR value). You select a function or an equation to plot (the current equation) from the Solver's equation list. If you plot an equation of the form y = f(x), the function f(x) is plotted. If you plot an equation of the form expression = expression (such as $x^3 + 10x = 5x^2 + 75$), the Calculator automatically changes it into a single expression (no equal sign) by *subtracting the right side of the equation from the left side* ($x^3 + 10x - 5x^2 - 75$). The value of this expression is then plotted against XVAR.
This table shows examples of how equations would be converted to expressions by function plotting, and what choices you would have for the independent variable, XVAR.

Expression or Equation in Equation List	What's Plotted as y-value	XVAR Choices
y = sin(x)	sin(x)	y^1
sin(x)	sin(x)	x
(PPSY*L*W)/9 = COST (from previous example)	(PPSY*L*W)/9 – COST	PPSY, L, W, COST
(PPSY*L*W)/9	(PPSY*L*W)/9 PPSY, L, W	

If y is selected as XVAR, the plot is y = sin(x), which is a straight line since sin(x) is a constant.

Setting the plot conditions

Function plotting uses two screens, one that shows plot conditions and one that shows the graph. You set the plot conditions first when you press **Plot** from the Solve Catalog. The function keys provided are described in the following table.

Function Keys Active in the Function Plotting and Plot Conditions Screen

Key Label   Description

Auto   Sets the upper and lower boundaries of the graph (YMAX and YMIN) to ensure that the curve will appear in the display, then draws the graph of the current equation. Using **Auto** ($\boxed{F3}$) is generally the easiest way to begin plotting an equation.

Dra   Draws the graph of the current equation using the values of the variables described below in this table.

XMIN   Defines the left boundary of the graph; the minimum x-axis value or XMIN. To change this value, type the value and press **XMIN** ($\boxed{F5}$).

XMAX   Defines the right boundary of the graph; the maximum x-axis value or XMAX. To change this value, type the value and press **XMAX** ($\boxed{F6}$).

YMIN	Defines the lower boundary of the graph; the minimum y-axis value or YMIN. To change this value, type the value and press **YMIN** (F7).
YMAX	Defines the upper boundary of the graph; the maximum y-axis value or YMAX. To change this value, type the value and press **YMAX** (F8).
XVAR	Specifies the independent variable. Pressing **XVAR** cycles through the equation's variables, specifying each in turn as the independent variable.
RES	Determines the resolution; the number of XVAR values for which the function is plotted. Larger values of RES provides greater accuracy but the graph is drawn more slowly. To change this value, type the value and press **RES** (F10). RES is ignored when plotting statistics data with a linear model.

Interacting with the graph

Once the graph is drawn , you can use specially defined keys to zoom in, zoom out, define a part of the graph to enlarge, find the function's roots, and perform other operations. These special keys and their actions are described in the following table.

Keys Active in the Function Plotting and Interactive Graphics Screen

Keys	Description
▲, ▼, ◄, ►	Moves graphics cursor around the graph by jumps.

$\boxed{\Uparrow}\,\boxed{\blacktriangle}$, $\boxed{\Uparrow}\,\boxed{\blacktriangledown}$ $\boxed{\Uparrow}\,\boxed{\blacktriangleleft}$ $\boxed{\Uparrow}\,\boxed{\blacktriangleright}$ Moves the graphics cursor around the graph by individual dots (pixels).

$\boxed{\text{CTRL}}+\boxed{\blacktriangle}$ $\boxed{\text{CTRL}}+\boxed{\blacktriangledown}$ $\boxed{\text{CTRL}}+\boxed{\blacktriangleleft}$ $\boxed{\text{CTRL}}+\boxed{\blacktriangleright}$ Pans the graph in the direction of the arrow.

Z-In   Zooms in by a factor of 5.

Z-Out   Zooms out by a factor of 5.

$\boxed{\Uparrow}$ **Z-In**   Zooms in by a factor of 5 and autoscales the y-axis.

$\boxed{\Uparrow}$ **Z-Out**   Zooms out by a factor of 5 and autoscales the y-axis.

Center   Centers the graph at the graphics cursor position.

$\boxed{\Uparrow}$ **Center**   Centers the graph at the graphics cursor position and autoscales the y-axis.

Keys Active in the Function Plotting and Interactive Graphics Screen (continued)

Keys	Description
Z-Box	Press once to set a mark (x) that remains when the cursor is moved. This mark defines one corner of a zoom box or the first of two guesses for a root. Move the cursor and press it again to enlarge to full screen the portion of the graph defined by the cursor position and the mark. If, after setting the mark and moving the cursor, you press $\boxed{\Uparrow}$ **Z-Box**, it enlarges to full screen the x-axis portion of the graph defined by the cursor position and the mark and then autoscales the y-axis.

`Solve` or `SPACEBAR`   Solves for a root using either one or two guesses chosen as follows: The first guess is provided by the XVAR value of the cursor's position when `SPACEBAR` pressed. For two guesses the first is provided by the XVAR value of a mark (x), produced at the cursor's position when `Z-Box` is pressed. The second guess is provided by the XVAR value of the cursor's position when `SPACEBAR` is pressed.

`(X,Y)`   When pressed repeatedly, rotates through three graph display modes: Standard mode, showing labeled axes only. Coordinate mode, where the coordinates of the cursor position are displayed as the cursor moves throughout the interactive graphics screen. Trace mode, where the cursor traces the function as you press `▶` and `◀`, and the value of the function is displayed for each cursor position (for each XVAR-value)

**Keys Active in the Function Plotting and Interactive
Graphics Screen (continued)**

Keys	Description
`ESC`	Exits the graph and displays the Function Plotting screen.
`X` `ENTER` or `ENTER`	Enters the x-value of the cursor's position into the calc line. To exit the graph and view the calc line, press `ESC`.
`Y` `ENTER`	Enters the y-value of the cursor's position into the calc line. To exit the graph and view the calc line, press `ESC`.
`X` `ENTER` `Y` `ENTER`	Enters both the x-value and the y-

value of the cursor's position into the history stack. If you enter the x-coordinate first, the x-value will be in level 1 and the y-value in the calc line. To view these values, use $\boxed{x \!\leftrightarrow\! y}$ or start the Math application to see the history stack.

20
Configuring and customizing the calculator

Configuration options

To see the Calculator Options menu, press ⌈÷⌉ ⌈MENU⌉ ⌈O⌉.

To change the Number Format:

When you press ⌈MENU⌉ ⌈O⌉ ⌈N⌉, you see four choices for how numbers are displayed in the calc line.

Format: **Description:**

Fixed Point Sets the displayed number of digits to the right of the decimal point to a fixed number. That number is set by the Number of Digits option.

Scientific Displays numbers in scientific notation. For example, 13,246.5798 is displayed as 1.325e4.

Engineering Displays numbers in engineering notation. For example, 13,246.5789 is displayed as 13.25e3.

All Displays numbers to their full precision.

The Number of Digits field lets you specify the number of digits to be displayed to the right of the decimal point for Fixed Point format.

Regardless of the way numbers are displayed, the Calculator stores most numbers to their full precision.

To change the Calculator Modes:

When you press ⌨MENU⌨ ⌨O⌨ ⌨M⌨, you see the choices for affecting Calculator modes of operation.

Angle Mode   Angles interpreted as Degrees, Radians, or Grads.

Operation Mode Gives you two choices for the syntax for entering calculations: RPN or conventional Algebraic.

Show Stack   If you select this check box, the current stack is always displayed in Arithmetic, Custom, and Math.

Show Registers If you select this check box, the storage registers are always displayed in Arithmetic and Custom.

To change the Startup Application:

Within the Calculator press ⌨MENU⌨ ⌨O⌨ ⌨S⌨.
Use ▾ to select your new Startup application.
Press ⌨F10⌨.

When you quit and then restart the Calculator, you see the "Startup" application. Also, when no menu is displayed and you press ⌨ESC⌨, you return to your Startup application.

Creating your custom calculator application

You can create a "Custom" Calculator application by assigning functions or applications to a set of function keys.

To create your Custom application:

Within the Calculator press ⌨MENU⌨ ⌨O⌨ ⌨C⌨.
Tab to the function key you want to define.
Use ▾ to select the function you want to assign to that function key.
   Shortcut: Try typing the first letter of the function you want; repeat that letter until your function is displayed.
Repeat steps 2 and 3 for other function keys.

Press F10 *to save and start your Custom application.*

To start your Custom application from another application:

Press $\boxed{{x}^{+}_{/}}$ MENU A U .

To make Custom your Startup Application:

Press $\boxed{{x}^{+}_{/}}$ MENU O S .
Use ▼ *to highlight Custom (it's near the bottom of the list) and press* F10 .

21
The setup utility

The Setup utility establishes these settings for your
palmtop PC:
Battery type and recharging (see *Appendix B* for information).
Printer configuration (see chapter 28 for information).
Date, time, and their formats.
Volume and screen contrast.
Memory allocation.
International Default Settings (currency symbols, etc.).
Character sorting order (for applications other than 1-2-3).
1-2-3 sorting order (collating sequence).
Topcard display (or other customized image).
To start Setup press &... S (or CTRL + ☐).

```
Setup                                                01/13/95  5:39 am
┌Memory──────────────┐                    Printer: HP LaserJet
│  System RAM: 636    │
│    RAM Disk: 352    │          Com1 Port Power in DOS: On
┌Power────────────────────────────────────────────────────────┐
│ Source: Adapter         Main Battery Type: Alkaline (single use)│
│            E          1/4          1/2          3/4          F  │
│   Main:   ████████████████████████████████████████████████    │
│                                                         ▲      │
│ Backup battery: OK                                             │
│                                                               │
└───────────────────────────────────────────────────────────────┘

   │Help │Time/Dy│Printer│ Owner │ System │ Comm │ Intl │ Sort │Battery│
```
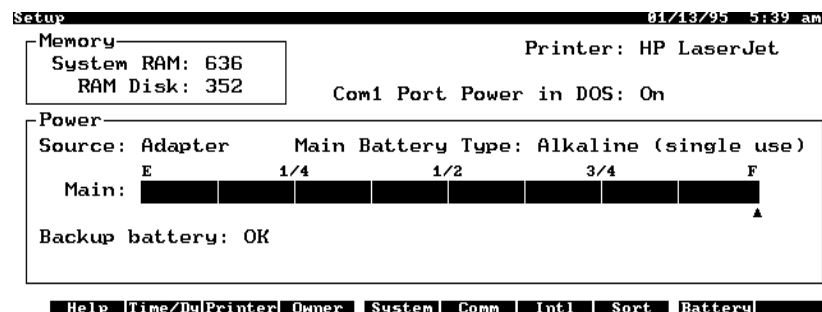
This display shows
The current division of RAM between system RAM and RAM
  disk.
The battery status.
The current printer type.
The status of Com1-port power when DOS is open.

Setting the date and time

The current date and time setting establishes the current date and time throughout the palmtop. The format settings, however, do not affect 1-2-3 except in the printing of headers and footers. (1-2-3 has its own commands for format settings.)

To set the current date:

In Setup, press ⌷MENU⌷ ⌷O⌷ ⌷D⌷.
Tab to the Current Date *and edit the highlighted date using the same format to show the new date (you can drop leading zeros).*
Press ⌷F10⌷

The date **delimiters** (punctuation between numerals) can be any one of these: hyphen, slash, space, colon, period, or comma. The current date can be in any year from 1980 through 2099. You can specify years 1980 through 2079 by their last two digits—for example, 1993 can be entered as 93. To specify years 2080 through 2099, you must enter all four digits.

To set the date format:

In Setup, press ⌷MENU⌷ ⌷O⌷ ⌷D⌷.
Tab to the Date Format *list box.*
Arrow to your format choice (see the table below). Not all choices are displayed at the same time. Arrow to scroll the complete list.
Press ⌷F10⌷.

The following table shows the available format options, each including an example date of August 14, 1994.

Date Formats

Format	Example	Format	Example
DD-MMM-YY	14-AUG-94	YY-MM-DD	94-08-14
DD-MMM	14-AUG	MM/DD	08/14
MMM-YY	AUG-94	DD/MM	14/08
MM/DD/YY	08/14/94	DD.MM	14.08
DD/MM/YY	14/08/94	MM-DD	8-14
DD.MM.YY	14.08.94		

To set the current time:

In Setup, press MENU O D .
Tab to the Current Time *and edit the highlighted time using the same format to show the new time (you can drop leading zeros).*
Press F10 *.*

The time **delimiters** (punctuation between numerals) can be any one of these: hyphen, slash, space, colon, period, comma, or h m s.

To set the time format:

In Setup, press MENU O D .
Tab to the Time Format *list box.*
Arrow to your format choice (see the table below). Not all choices are displayed at the same time. Arrow to scroll the complete list.
Press F10 *.*

The following table shows the available format options, each including an example time of 2:03:07 pm.

Time Formats

Format	Example	Format	Example
HH:MM:SS	02:03:07 pm	HH,MM,SS	14,03,07
(AM/PM)		HHhMMmSSs	14h03m07s
HH:MM	02:03 pm	HH:MM	14:03
(AM/PM)		HH.MM	14.03
HH:MM:SS	14:03:07	HH,MM	14,03
HH.MM.SS	14.03.07	HHhMMm	14h03m

Specifying audio volume and display intensity

To adjust the audio volume:

In Setup, press MENU O S .
Tab to Volume *.*
Press ► *to increase or* ◄ *to decrease volume. As you change volume, a beep sounds to demonstrate that volume.*
Press F10 *.*

To adjust the display contrast from any application:

To darken: Press `ON`+`+`
To lighten: Press `ON`+`-`.
To invert light and dark: Press `ON`+`/`.

Allocating memory between system RAM and the RAM disk

The Setup utility enables you to change the allocation of built-in RAM (memory) between the System RAM and the RAM disk.

System RAM is workspace memory used by applications, the Clipboard, and DOS.

The **RAM disk** (drive C) is used by your palmtop to save files just as a hard disk is used in a desktop PC.

Guidelines for Choosing a System RAM/Ram Disk Division

If you can't open additional applications because you have run out of memory, either close unused applications or increase system RAM.

If you can't save additional files in drive C (RAM disk) created by your applications, either delete unneeded files or increase RAM disk.

To change RAM memory allocation between system and disk:

Press `&...` `MENU` `A` `L` to close all open applications.
Press `&...` `S` `MENU` `O` `S`.
Tab to Memory.
Press `▶` and `◀` to change allocation (in kilobytes). You can't decrease RAM disk allocation under what is required to store files currently on disk.
Press `F10` (or `F9` to cancel).

Allocating memory within system RAM

The Setup utility enables you to allocate System RAM among

general workspace, the Clipboard, static data, and DOS. Your palmtop was shipped with these default memory values (with the remainder of System RAM left over for general workspace):

Clipboard: 4K
Static data: 10K
DOS: 96K

Clipboard system RAM is the RAM used by the Clipboard to store information. If you get an insufficient memory message when you use the Clipboard, either reduce the size of what you are putting in the Clipboard, or increase the amount of Clipboard system RAM.

Static data system RAM is the RAM used by some System-Manager compliant applications you can add to your palmtop that run like built-in applications. Do not change the static RAM value unless you load a System-Manager compliant program that states it needs a different amount of static RAM, or you find that the loaded program can't run when you switch back to it.

DOS system RAM is the RAM available for use by DOS and DOS applications when you run DOS from the Applications Manager. If you set DOS system RAM to 200K bytes of memory, for example, and then press &... D to open DOS, the System Manager first checks to see if 200K is free. If 200K is available, it launches DOS. Then when you attempt to run your DOS application, it will run successfully if it requires no more than 200K. If you set this number too high, you may not be able to get a DOS prompt, or other applications may not have enough remaining memory to run.

To allocate system RAM for Clipboard, static data, and DOS:

From Setup, press MENU O S F8 .

Tab to the text box for the type of system RAM you want to change.
Type a number of kilobytes within the limits shown.
Repeat steps 2 and 3 to change other memory allocations.
Press F10 *(or* F9 *to cancel).*

Changing country defaults, punctuation, currency, and code page settings

In Setup, press MENU O I to see the International dialog box:

```
Setup                                           10/31/94  8:35 am
┌────────────────────────── International ──────────────────────────┐
│ Punctuation          Country              Keyboard:               │
│ ┌───────────────┐    ┌────────────────┐     English                │
│ │ ( , , )       │    │ United States ↓│                           │
│ │ ( ; ; )       │    ┌─Currency────────┐  Date/Time Formats:       │
│ │ ( ; , )       │    │ Symbol: $        │    MM/DD/YY               │
│ │ ( , . )       │    │    ◉ Prefix      │    HH:MM AM/PM            │
│ └───────────────┘    │    ○ Suffix      │                          │
│       Decimal Point (.) └────────────────┘    ┌──────────┐         │
│    Argument Separator (,) ┌─DOS Code Page─┐   │   OK     │         │
│    Thousands Separator (,) │ ○ 850  ◉ 437 │   └──────────┘         │
│                           └───────────────┘   │ Cancel │           │
│                                                └────────┘          │
└───────────────────────────────────────────────────────────────────┘
   Help                                          Cancel   OK
```
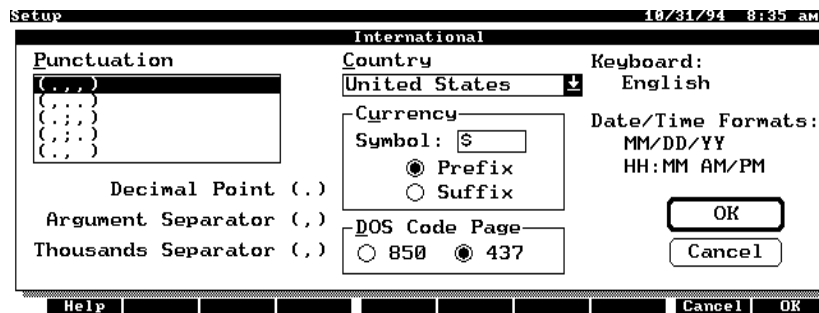
Tab to the field you want to change.
Use the arrow keys select the setting you want. (You must type in the desired currency symbol.)
Repeat for other fields.
Press F10 *(or* F9 *to cancel).*

Here is some relevant information about the International settings:

As you select a country, the defaults for punctuation, date and time formats, currency symbol plus prefix/suffix, character sort order (for applications other than 1-2-3), and the available choices for DOS code page are chosen to agree with those used in the selected country. (You can still change individual settings if you like.)

This table shows how to type various currency symbols.

How to Display Currency Symbols

Keystrokes	Currency Symbol
Press ⟨⇧⟩ ⟨目⟩	$
Press ⟨FN⟩ ⟨☎⟩	£
Press ⟨FN⟩ ⟨H⟩	¥
Press ⟨FN⟩ ⟨目⟩	¢
Press ⟨FN⟩ ⟨F⟩	ƒ

In order for new punctuation and currency settings to take effect in 1-2-3, you must quit 1-2-3 and then restart it. Also, the settings in any 123.CNF file present at startup take precedence over the settings made here.

Changes you make in the International dialog box using Setup affect only System Manager Applications. They do not affect applications that you run from the DOS prompt. To make changes in these settings that affect both System Manager *and* DOS applications, make the changes using the special DOS command KEYBEZ. See *Appendix D* for information on KEYBEZ.

The Punctuation setting establishes the symbols used by the Calculator and the default symbols used by 1-2-3.

The table below describes the punctuation symbols you can choose from.

Punctuation Symbols

Combination	Examples	Decimal Point	Argument Separator	Thousands Separator
. , ,	2.3	@PMT(B1,B2/12,B3)		1,234
, . .	2,3	@PMT(B1.B2/12.B3)		1.234
. ; ,	2.3	@PMT(B1;B2/12;B3)		1,234
, ; .	2,3	@PMT(B1;B2/12;B3)		1.234
. , space	2.3	@PMT(B1,B2/12,B3)		1 234
, . space	2,3	@PMT(B1.B2/12.B3)		1 234
. ; space	2.3	@PMT(B1;B2/12;B3)		1 234
, ; space	2,3	@PMT(B1;B2/12;B3)		1 234

If a DOS application requires a code page different than the default for your country, you can select the other option in

the DOS Code Page field.

A code page change does not affect a DOS task that is already open. A change becomes effective when you open DOS after you make the change.

Specifying the sorting order for Lotus 1-2-3

The Sort command specifies the sorting order—called the *collating sequence*—used in 1-2-3 by the /Data Sort command.

To change the 1-2-3 sorting order:

In Setup, press MENU O 1 *(the number 1).*
Arrow to the sorting order you want.
Press F10 *.*

Specifying a topcard or picture display

The Topcard appears whenever you quit all applications. You can create a monochrome graphics image (a picture) to appear in place of the Topcard if you have PC graphics software that uses the .PCX file format. A picture will appear instead of the Topcard whenever you quit all applications.

To fill out a new Topcard:

In Setup, press MENU O O *.*
Tab to and fill out your Name *,* Title *, and* Company *.*
Check or uncheck the Show Picture box (use the SPACEBAR *) depending on whether or not you want the default picture to surround your Topcard information.*
Press F10 *(or press* F9 *to cancel).*
To display your new Topcard, quit all open applications (press &... MENU A L *).*

To substitute a customized graphic image for the Topcard:

Create the desired image in a .PCX graphics file on a PC. To fill the display, the .PCX file should contain a monochrome image (single plane) that is 640 pixels by 200 pixels. If it's larger, the pixels beyond the 640 by 200 frame will not be displayed. If it's smaller, a portion of the display will be blank.

Transfer the file to your palmtop (for example to the C:_DAT directory).
Press `&...` `S` *to start the Setup utility.*
Press `MENU` `O` `O` `F8`.
Type or highlight the path and name of your `.PCX` *file.*
Press `F10`.
If necessary, press `ALT` + `S` *to place a check in the Show Picture box.*
Press `F10`.
To display your new picture, quit all open applications (press `&...` `MENU` `A` `L` *).*

To remove your graphic image and restore the Topcard:
In Setup press `MENU` `O` `O`.
Press `F8`.
Tab to the `Directories` *list box, arrow to* `D`*, and press* `ENTER`.
Arrow to `_SYS` *and press* `ENTER`.
Press `ALT` + `F` *and arrow to* `TOPCARD.PCX`.
Press `ENTER` `F10`.
To confirm that you have the default Topcard back, quit all applications.

Closing Com1 to save power

You can save battery power when DOS is open by disabling/closing Com1 when you're not using it. However, if you use a DOS communications program, make sure the serial port is enabled/open.)

From Setup, press `MENU` `O` `C` (Options Communications-Port).

Clear the checkbox `Enable Com1 Port in DOS` *(tab to the field and press* `SPACEBAR`*, if necessary).*
Press `F10` `MENU` `Q`.

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The Filer and File Management

In your palmtop PC, data is saved in electronic files just like in any PC. The plug-in card slot is designated drive A and the internal RAM disk (analogous to a PC hard disk) is designated drive C. One difference, however, between your palmtop and most PCs is that the palmtop *automatically saves files in most applications as you work.* This is true for all applications except 1-2-3, the Memo Editor, and the Calculator. In these applications you must go through a saving process to save your data.

The built-in applications use DOS file-naming conventions. MS-DOS in the palmtop is described in chapter 25.

The application that enables you to manage your files—in other words to copy, delete, and otherwise organize them—is the Filer. Press ▢ to start the Filer. If you *do not* have a card plugged in, you should see a listing of your root directory (C:\) similar to the following screen. If you *do* have a card plugged in, you'll see a split screen with the root directory on one side and a directory for the card on the other. For more information see *Using the split screen* near the end of this chapter.

```
Filer                        File List              11/15/93  7:04 am
C:\*.*                                                          Local
..                          ▲View Up▲
_DAT                             <DIR>              01-01-80  12:00a




Dirs: 1    Files: 0      Bytes: 0      Bytes Free on Disk: 342,016
     Help   Copy    Move  Filter    Goto  Remote  Split   View    Tree  Connect
```

The Root Directory on Drive C

Among its many files, the root directory also lists at least one
subdirectory, _DAT (marked <DIR>). _DAT contains many
configuration files, such as the file for the printer settings, and
will also contain files you create as you use your palmtop.
Do not delete or rename the _DAT directory.

Take care of your data

You should take care of the data on your palmtop like you
would on any PC. Here are some helpful suggestions:
Close (Quit) applications when you're finished using them.
One approach is to quit all open applications and return to the
initial display (Topcard) at the end of each day.
Back up your data files regularly by copying them to a memory
    card or, if you have the Connectivity Pack, to a PC. Backing
    up is covered later in this chapter.
Carry an extra set of AA batteries so that you can replace your
    batteries as soon as the low-battery warning is displayed. If
    your batteries die while files are open, you could lose data.
Change the backup battery *as soon as possible* after you see the
    low backup battery warning message.
Close (Quit) all applications and turn off the palmtop before
changing batteries.

Working with files

The Filer is your file manager—it lists directories and the files in those directories. You can use these lists to copy, move, delete, rename, and print files.

Example: Making a Directory for 1-2-3 Files. Create the subdirectory C:\123 for your 1-2-3 worksheet files.

Keys:	Description:
▭ MENU F T	Starts the Filer and opens a dialog box for creating a directory
c:\	Sets the path.
123 F10	Names and creates the subdirectory.
123 MENU W G D	Starts 1-2-3 and selects the default settings screen.
D ESC c:\123 ENTER	Makes the new 123 directory the default for new 1-2-3 files.
U	Updates the 1-2-3 configuration file so that C:\123 remains the default directory in future 1-2-3 sessions.
Q ▭	Quits the 1-2-3 menu and returns to the Filer.

To copy or move a file or directory:
In the Filer, use the arrow keys to highlight the name of the file or subdirectory. As a shortcut, just start typing its name.
Press F2 (copy) or F3 (move).
Type the new file or directory name. If you specify a path with subdirectories that don't exist, the Filer will ask if you want them created. Respond by pressing F10 (OK) or F9 (Cancel).
Press F10 to perform the operation, or press ESC to cancel.

To delete a file or directory:
Do not delete the _DAT directory.

In the Filer, highlight the name of the file or subdirectory you want to delete. When you delete a directory, any files or directories it contains are also deleted.

Press DEL*.*

Press F10 *to perform the deletion, or press* ESC *to cancel.*

To attempt to recover deleted files or directories:

In the Filer, display the directory list that contained the deleted files or directories.

Press MENU F U*.*

*Type a file specification for the files or directories you want to recover. The ? and * wildcards are allowed. To see all candidates for Undelete, accept *.* as the undelete-file specification.*

Tab to the File Type option box and arrow to your choice.

Press F10*.*

File and directory names are displayed with ? replacing the first characters. Arrow to highlight one of the files or directories you want to undelete and press ENTER*.*

The name of the highlighted file or directory is displayed. Type the character that should replace the ? and press F10 *to attempt recovery. A message will report the success or failure of your attempt.*

Press F10*.*

To rename a file or directory:

In the Filer, highlight the name of the file or directory to rename.

Press MENU F N*.*

Type a new file or directory name and press F10*.*

To view the contents of text (ASCII) files:

In the Filer, highlight the file name and press F8 .

Use arrow keys, FN *HOME,* FN *END,* FN *PGUP, and* FN *PGDN to view every part of the file.*

To return to the directory display, press F8 *or* ESC*.*

To run an executable file:

Files with file name extensions of .EXE, .COM, or .BAT are executable files.

In the Filer's Directory List view, highlight the name of the executable file you want to run.

Press ENTER*.*

To search for text in a file:

In the Filer, display the directory containing the file to search.
Press MENU O E.
In the Text Search text box, type the text you want to find.
Select the files to search in one of these ways:

To search all files in the directory, press F10 to display the
Text Search Results dialog box.

To search a particular file or set of files, press TAB and edit
the offered file name (*.*) to define the file or files you
want to search (you can use the wildcards * and ?). Then
press F10 to display the Text Search Results dialog box.

*In the Text Search Results dialog box, arrow to the file you want to see and
press* F8.
To view another file containing the search text, press F8*, then repeat step 5.*
To end the search, press F8 F10.

To select (tag) multiple files and/or subdirectories:

You can tag several files and directories to do multiple copies,
moves, deletes, and prints all at once.
In the Filer, highlight a file or directory and press SPACEBAR.
Repeat step 1 as often as you want.
To de-select, highlight the file or directory and press SPACEBAR.

You can also use MENU O T (Options Tag) to select the
currently highlighted file or directory, all files and directories
above or below the highlight, and all files and subdirectories in
the directory. If you select None, all files and directories will be
de-selected.

Viewing a directory

In the Filer you can switch between a **File List view** and a
Directory Tree view (shows no file names) by pressing F9.

{
C is the current drive.
\ (following C:) is the root directory.
_dat is the current directory.
C:_dat is the path to the current directory
. is the designator for all files in _dat.

Subdirectories of _dat.   Dates of creation.

```
File                    File List        03/03/94   3:31 am
C:\_dat\*.*                                          Local
                        ▲Vie    ▲
 ..
 GAMES                          <DIR>     02-20-94   11:32a
 STOCKS                         <DIR>     02-12-94    9:40a
 appmgr    dat             8,736         01-07-94    1:27p
 calc      env             1,929         02-11-94    4:17p
 ccmail    ini               718         01-24-93    5:15p
 filer     env               165         01-07-94    9:13a
 memo      env               206         01-19-94    9:16a
 setup     env             6,363         01-07-94    9:13a
 trip1-94  doc               372         01-19-94    9:16a


 Dirs: 2    Files: 7      Bytes: 18,489    Bytes Free on Disk: 330,240
   Help    Copy   Move   Filter   Goto   Remote  Split   View   Tree  Connect
```

Current file.   File size in bytes.   Times of creation.

File List View

Subdirectory   These dots mean NASDAQ
of C:\   contains one or more subdirectories.

```
File                  Directory Tree     03/03/94   3:29 am
C:\  .*                                               Local
 ..
 _DAT        ▲View Up▲
 ─── GAMES
 ─── STOCKS
      ─── NYSE
      ─── NASDAQ...
      ─── ASE




      Directories: 6            Bytes Free on Disk: 330,240
   Help   Copy   Move   Filter   Goto  Remote  Split   Sync   List  Connect
```

Subdirectories of STOCKS.

Directory Tree View

You can also **Sync** the view to combine both the File List and
Directory Tree views in one split screen. To Sync (or Unsync)
the view, press [F8].

Tree view of C:_dat directory.   List view of C:_dat directory.

```
Filer                    Directory Tree          03/03/94  3:34 am
C:\_dat\*.*                     Local  C:\_dat\*.*                 Local
                   ▲View Up▲           ..                    ▲View Up▲
GAMES                                  GAMES                    <DIR>
STOCKS                                 STOCKS                   <DIR>
   ─── NYSE                            appmgr   dat             8,736
   ─── NASDAQ                          calc     env             1,929
         ─── DAILY                     ccmail   ini               718
             WEEKLY                    filer    env               165
   ─── ASE                             memo     env               206
                                       setup    env             6,363
                                       trip1-94 doc               372

          Directories: 7              Bytes Free on Disk: 340,240
     Help │ Copy │ Move │Filter▐ Goto │Remote│ Full │ Sync ▐ List │Connect
```

Sync View

To display a subset of the current directory:

Press F4 .

*Using the wildcards ? and *, specify the current directory's files you want
displayed. For example, the file specification *.TXT specifies all files in the
directory with the .TXT extension.*

*Press F10 . The subset you choose will remain until you change it or quit the
Filer.*

To display a complete directory listing when viewing a subset:

Press F4   F8 .

To choose the way files are sorted in a directory listing:

In the Filer, press MENU   O   S to display the file sorting
choices.

Fill out the dialog box. Press F1 if you need help with the fields.

Press F10 .

Changing the current directory

To reach a higher-level directory:

Either press ESC ,

Or highlight ▲View Up▲ and press ENTER .

To reach a lower-level directory:

Highlight the subdirectory name.
Press ENTER.

To display any other directory or drive:

In the Filer, press F5.
Or, press ESC to display the drive list. Then highlight the drive
and press ENTER.

Using plug-in memory cards

Drive A holds plug-in memory cards.

Caution

*Turn the palmtop off before inserting or removing any plug-in memory
card. Otherwise, the information on the card may be lost.*

To format a plug-in memory card:

Many memory cards come preformatted—for example HP
Flash Disk cards—but if you find you need to format a memory
card, follow the procedure here.

*Ensure that no program is running in MS-DOS. If a DOS program is running, a
    card cannot be formatted.*
Turn off the palmtop, insert the memory card, and turn on the palmtop.
In the Filer, press MENU O C. *You will lose the present contents of your
    memory card when you complete the next step.*
Press F10.

To copy (back up) a file to a memory card (drive A):

With the Filer closed and the palmtop off, insert the card.
Press ON ▢.
Highlight the file on drive C (left side of the screen) that you want to copy to A.
*If you want to copy the file into a subdirectory on drive A, open the
    subdirectory:*
Press ▶ to switch the highlight bar to drive A.

Highlight the subdirectory to open and press $\boxed{\text{ENTER}}$.

Press $\boxed{\blacktriangleleft}$ to move back to drive C.

Press $\boxed{\text{F2}}$ $\boxed{\text{F10}}$ to copy the file to A using the same file name.

Backing up a directory's files

You can back up a directory to a plug-in memory card or to a PC using the Connectivity Pack. Install the card or the Connectivity Pack before backing up.

To back up a directory's files to a new or existing directory:

In the Filer, display the listing of the directory whose files you want to back up. The directory name and its path will be displayed at the top left of your screen.

Press $\boxed{\text{MENU}}$ $\boxed{\text{F}}$ $\boxed{\text{B}}$.

Type a path and name of a new or existing directory that will contain your backup. This path could be to a memory card or, if you have the Connectivity Pack and use LapLink Remote Access, to a PC. Do not end the text you type in the To: text box with a \.

Press $\boxed{\text{TAB}}$ and highlight to select either All directories and files *or* Files only.

Optional: Tab to and select Modified files only *and/or* Overwrite existing files.

Press $\boxed{\text{F10}}$.

If any directories in the path do not now exist, you'll be asked if you want to create them. Press $\boxed{\text{F10}}$.

Directories and file name extensions used by palmtop applications

The following table will help you identify files that belong to specific applications. Most applications automatically give a file a specific extension when the file is saved, and most files are by default saved in the C:_DAT directory.

Standard File Name Extensions

Application	File Name Extension	File Use
Appt Book	ADB	Appointment books
cc:Mail	ADE	cc:Mail Local Address Book update
cc:Mail	ATT	cc:Mail message attachment
1-2-3	BAK	Backup worksheets
Datacomm	CAP	Capture files
cc:Mail	CCM	cc:Mail inbox
Calculator	CFL	Cash flow lists
Datacomm	CTF	Character translation files
Datacomm	DCF	Configuration files
Memo Editor	DOC	Memos and Quicken print files
Many App's	ENV	Environment files
Calculator	EQN	Solver equation lists
App. Mgr.	EXM	Sys. mgr. compliant prgms.
Filer	FCF	Configuration files
cc:Mail	FLD	cc:Mail folders
DOS	FON	Format files, related to KIT files
Database	GDB	Databases
cc:Mail	IDX	cc:Mail address book index
DOS	KIT	Keyboard Information Table files
Datacomm	LCF	Script files
System Macros	MAC	Macro sets (1-10 macros)
cc:Mail	MSG	cc:Mail messages
Note Taker	NDB	Notes
Setup	PCF	Printer configuration files
Setup	PCX	Topcard graphics
Phone Book	PDB	Phone books
1-2-3	PIC	Graphs
1-2-3	PRN	Print or text files
Calculator	STA	Statistics lists
Pocket Quicken	PDT	Pocket Quicken data files
1-2-3	WK1	Worksheets
World Time	WDB	Worldtime files

Using the split screen

The split screen (two-window) display makes file transfer and backup much easier. You highlight the file in one window and display the destination directory in the other window. Then press two keys to complete the transfer. You don't have to remember or type the path and file name.

If there is a plug-in card in drive A, a split screen displays when you open the Filer for the first time. The left window displays the root directory C:\ and the right window shows A:\.

To switch between split and full screen display:

In the Filer, press $\boxed{\text{F7}}$.

To move the highlight between split windows:

Press $\boxed{\blacktriangleright}$ or $\boxed{\blacktriangleleft}$.

To copy or move files and directories using a split screen:

In the Filer, press $\boxed{\text{F7}}$ to display a split screen.

In the window containing the highlight, make the destination directory current. The directory's path will display at the top left of the screen; for instance, `C:\_dat\*.*`*.*

Use $\boxed{\blacktriangleright}$ *or* $\boxed{\blacktriangleleft}$ *to place the highlight in the other window.*

Highlight or tag the files or directories to copy or move. The figure below shows how your screen might look at this point if you were copying PICTURE2.PCX from drive A to the directory C:_DAT.

```
Filer                      File List            02/11/94  1:37 PM
C:\_dat\*.*              │ Local │ A:\pictures\*.*          │ Local
   ..            ▲View Up▲         ..              ▲View Up▲
ccmail    ini          718      picture1 pcx          2,110
compusrv  dcf          628      picture2 pcx          5,233
dowjones  dcf          628      topcard  pcx          6,157
filer     env          165      topscar  pcx          9,173
genie     dcf          628
mci       dcf          628
setup     env        6,363




Dirs: 0   Files: 4      Bytes: 22,673      Bytes Free on Disk: 429,056
     │ Help │ Copy │ Move │Filter│ Goto │Remote│ Full │ View │ Tree │Connect
```

Press either ▢F2 *(copy) or* ▢F3 *(move). The destination defaults to the current path in the other window.*

Press ▢F10*.*

You can use the above procedure for operations between your palmtop PC and a desktop PC using the Connectivity Pack. Using an IR transfer, you can copy or move files and directories between two palmtops or between your palmtop and another PC equipped with IR capability.

Transferring files between your HP 200LX and another computer

You can copy and move files and directories between your HP 200LX and another computer in several ways:

Using a memory card compatible with both computers. Both computers must accept PCMCIA 2.0 memory cards. You copy or move from one computer to a memory card, then insert that card into the other computer and copy or move from card to computer.

Using a serial cable and Datacomm (see chapter 26).

Using the Connectivity Pack (see the *Connectivity Pack User's Guide*).

Using an IR connection.

Transferring files using an IR connection

Your palmtop includes an IR port that enables you to perform most of the file and directory operations described in this chapter. Only the undelete command is unavailable during IR communication. No cable or additional software is required. The following steps are required for IR communication:

Configure each computer for IR communication.
Position the two computers for IR communication.
Establish IR communication for file and directory transfer.

These steps are covered by the following procedures.

To configure an HP 200LX for IR communication:

From the Filer, press ⌞MENU⌟ ⌞C⌟ ⌞R⌟ .
Arrow to the baud rate supported by the two computers:
  - For HP 200LX to HP 95LX IR communication, use 2400 baud.
  - For HP 200LX to HP 200LX IR communication, use 57,600 baud.

Tab to Interface *and arrow to* Infrared.
Press ⌞ALT⌟ *+* ⌞S⌟ *to reach the* Server Mode *option box and highlight* Enabled *on the HP 200LX chosen to be the server (the unit you won't work from).*
Press ⌞F10⌟.

To position the two computers for IR communication:

Place the two computers with their infrared ports directly opposite each other and separated by about 1½ inches, as shown in the figure below. The **client** (the computer you'll operate) should face you so you can operate it conveniently. The infrared port is lined up with the third row of keys, counting from the top (the third row contains the ⌞7⌟, ⌞8⌟, and ⌞9⌟ keys).

Maximum distance 6 inches

Client

Server
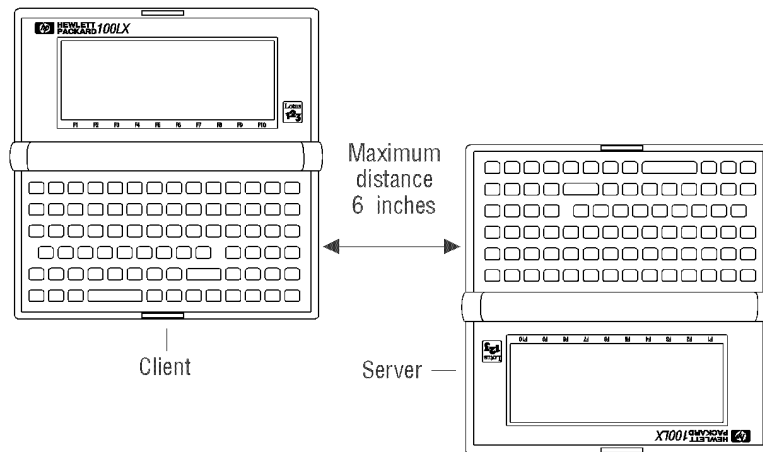
To transfer files and directories by IR between two palmtops:

Once the two palmtops are configured and positioned, do the following on the client:

Press [F6] *to establish IR communication between both palmtops. If you see only one window in the display, press* [F7] *to see the split screen. The left window ("Remote") shows the* server *directory list. The right window ("Local") shows the* client *directory list (the one you are working at). If you have trouble establishing the connection, start Datacomm (*[&...] [C]*) on both computers, then return to the client's Filer and press* [F6] *again.*

Display the listing for the destination *directory (where you want to put the files).*

Highlight the source *file that you want to copy or move and select it (press* [SPACEBAR]*). You can select more than one file.*

Press [F2] *(Copy) or* [F3] *(Move).*

The dialog box should show the destination directory name. If not, type the path and name of the destination directory.

Do not type \ *as the final character.*

Press [F10]*.*

Press [F10] *to break the IR connection.*

To switch a window between local and remote directory displays:

The Filer will not display two remote directories simultaneously.

Press [F6]. The Local/Remote indicator at the top-left of the window indicates whether the displayed directories are local or remote.

To turn an IR connection off:

When you're not using it, be sure to turn off IR to conserve battery power.

Press [F10] (disconnect). When no connection is active, [F10] is labelled **Connect** .

Transferring files between an HP 100LX and an HP 200LX

HP 100LX files share the same format as HP 200LX files. Therefore, the procedures in this chapter that cover transferring files between HP 200LX's also apply to transferring files between an HP 100LX and an HP 200LX.

Transferring files between an HP 95LX and an HP 200LX

You can transfer ASCII files between an HP 95LX and an HP 200LX in either direction. You can also transfer HP 95LX Appointment Book and Phone Book files to an HP 200LX. You cannot use HP 200LX Appointment and Phone Book files on the HP 95LX.

About HP 95LX appt book and phone book files

When you open for the first time a transferred HP 95LX Appointment or Phone Book file, the HP 200LX senses the HP 95LX file format and automatically starts a translation process. You are prompted to give a name to translate the file to—fill out the Translate dialog box and press F10. Note that HP 95LX Appointment and Phone book files have the extensions .ABK and .PBK, while HP 200LX Appointment and Phone book files have the extensions .ADB and .PDB.

To configure an HP 95LX for IR communication:
From the Filer, press MENU R C I 3 Q Q (Remote-Set Config Interface 3(Infrared) Quit Quit).

Note

Do not copy the C:_DAT directory between the HP 95LX and the HP 200LX. There are files of the same names that would be copied over and lost. Instead, copy just those individual files that you want.

To transfer files and directories by IR between an HP 95LX and an HP 200LX:

Note that a copy or move operation for an HP 95LX Appointment Book to an HP 200LX will take 1 to 3 minutes for a book of average size. An average Phone Book should take less than a minute.
Configure and position the HP 95LX and HP 200LX as described.

On the HP 200LX, press F6 to establish IR communication. If you see only one window in the display, press F7 to see the split screen. The left window ("Remote") shows the HP 95LX's directory list. The right window ("Local") shows the HP 200LX's directory list. If you have trouble establishing the connection, start Datacomm on both computers, then return to the HP 200LX Filer and press F6 again.

Display the listing for the destination directory (where you want to put the files).

Highlight the source file that you want to copy or move and select it (press SPACEBAR). You can select more than one file.

Press [F2] *(Copy) or* [F3] *(Move).*

The dialog box should show the destination directory name. If not, type the path and name of the destination directory. Do not type \ as the final character.

Press [F10].

Press [F10] *to break the IR connection.*

23
System macros

The System Macros application enables you to record keystrokes for repetitive tasks. When you want to perform this task again, you can run your macro program and let it "press" the keys for you.

When you create a macro, you assign it to one of the function keys $\boxed{\text{F1}}$ through $\boxed{\text{F10}}$. To run a macro, you press $\boxed{\text{FN}}$ plus the function key to which the macro was assigned. You can run a system macro from the Topcard display or from any application except DOS or System Macros.

Creating system macros

A macro can contain a maximum of 255 keystrokes. To overcome this limit see *Creating macros that execute other macros* later in this chapter.

To create a system macro from the System Macro application:

Press $\boxed{\text{\&...}}$ $\boxed{\text{M}}$ to open System Macros.

Arrow to the function key you want your macro assigned to.

Press $\boxed{\text{F8}}$ $\boxed{\text{F10}}$ to initiate macro recording. You are automatically switched back to your previous application.

Press the keys that constitute your macro. As each key is pressed, a low beep indicates the key is recorded.

End macro recording by pressing $\boxed{\triangle}$ + $\boxed{\text{ON}}$ $\boxed{\text{Fn}}$, where $\boxed{\text{Fn}}$ is any function key, regardless of whether or not a macro is assigned to it.

To enter an optional description or name for your macro, press $\boxed{\text{F2}}$ from the System Macros application, then type your description in the Description text box.

Press $\boxed{\text{F10}}$.

To create a system macro while displaying each key

symbol:

Press &... M *to open System Macros.*
Arrow to the function key you want your macro assigned to.
Press F2
Optional: type a name or description for your macro.
Tab to the Contents dialog box. This box contains symbols for the keys you want your macro to execute.
Press the text keys or generate the symbols for other keys in the order you want your macro to "press" them. To generate those symbols, press F6*, then the key or key combination that normally would produce the operation you want your macro to perform. If you know the symbol, you can type the operation rather than have* F6 *generate it for you. If you're not sure if you need to use* F6 *to generate the symbol (rather than press the key directly), use* F6*, since it always works. For instance, pressing* F6 MENU *displays* {Menu}.
Press F10*.*

To create a system macro from another application:

From any application except System Macros and DOS, hold down ⇧ *and* FN*, and then press the function key you want your macro assigned to. A two-tone beep, the first low, the second high, indicates the start of macro recording.*
Press the keys that constitute your macro. As each key is pressed, a low-tone beep indicates the key is recorded.
End macro recording by pressing ⇧ + FN *and a function key.*
To enter an optional description or name for your macro, press &... M*. Highlight the macro, then press* F2 *and type your description in the Description text box. Then press* F10*.*

To run a system macro:

You cannot run a system macro from within DOS or the System Macros application.
Press FN followed by the function key that the System Macro is assigned to.

To edit a system macro:

Press &... M to open System Macros.
Highlight the macro you want to edit.
Press F2
Edit the description and contents of your macro. If you don't know a key

symbol for a non-text key, press F6 *, then press the non-text key. The palmtop will enter the symbol for you.*

To save your editing changes, press F10 *. Do not press* ENTER *to save changes because it is used as a text key in the Contents box.*

Creating macros that execute other macros

You can chain macros together to overcome the 255 keystroke macro size limit. To do this, make the last step of your macro execute a second macro. The second macro could end by executing a third macro, and so on. Your only limit is the amount of RAM disk memory.

To instruct a macro to run another macro:

Within System Macros highlight a function key and press MENU M E *.*
Create or edit your macro.
At the end of the macro (press FN *END) press* F7 *(Chain).*
Select the macro to chain to.
Press F10 *.*

Caution

If you chain to another file of macros, be sure the macro set you're chaining from is saved (press MENU F S *). Otherwise, when you chain from an unsaved set of macros, they will be lost.*

Note

When a macro chains to another macro in another file, that other file becomes the current file. Therefore, the macro represented by FN F1 *, for example, is now a different macro.*

Saving and opening sets of system macros

The System Macro application will automatically save up to 10 macros. If you want to save more than 10, you need to save the first set of up to 10 in a file. Only RAM disk size limits the

number of sets of macros you can save in files.

To save a set of macros:

In the System Macros application, press MENU F A.
Type a file name. The file name extension .MAC is added automatically. The file will be saved in the C:_DAT directory.
Press F10.

If you add macros to a set that has already been saved, you can save this new version of the same set by pressing MENU F S.
Use MENU F O to open an existing file of macros.
Use MENU F N to open a new blank set of macros.

Clearing (deleting) system macros

To clear a single system macro:

In the System Macros application, highlight the macro you want to delete.
Press F7 F10.
If you have saved this macro set, save this new version (if you want) under the same name by pressing MENU F S.

To delete a saved set of Saved macros, use the Filer to delete the file.

System macros and Lotus 1-2-3

You can write and run a System Macro while in the 1-2-3 application.
You can cause a System Macro to execute a 1-2-3 macro.
You *cannot* cause a 1-2-3 macro to execute a System Macro, since there is no 1-2-3 macro instruction for this action.
This first example below shows how to write a System Macro that starts a 1-2-3 macro.

System macros examples

Example: Writing a Macro that Starts a 1-2-3 Macro.

You want to start 1-2-3 and execute a 1-2-3 macro from other applications. Assuming the 1-2-3 macro is assigned to ⌊ALT⌋+⌊A⌋, you follow these steps to write this system macro.

Display the Topcard or open any application except System Macros or DOS.
Press ⌊⇧⌋ ⌊FN⌋ ⌊F1⌋ *to start recording (assuming* ⌊F1⌋ *has no macro already assigned to it).*
Press ⌊12₃⌋ ⌊ALT⌋+⌊A⌋*.*
Press ⌊⇧⌋+⌊FN⌋ ⌊Fl⌋ *to stop recording.*

Now, when you press ⌊FN⌋⌊F1⌋ from another application, 1-2-3 will start and execute the ⌊ALT⌋+⌊A⌋ 1-2-3 macro.

Example: Printing Today's Appointments from the Appointment Book

At the start of each day you want to have a printed list of your appointments. You can execute this macro to print this list, provided these conditions exist:

No Appointment Book record is open.

Your printer is turned on.

Create this macro as follows:

Display the Topcard or open any application except System Macros or DOS.
Press ⌊⇧⌋+⌊FN⌋ ⌊F2⌋ *to start recording (assuming* ⌊F2⌋ *has no macro already assigned to it).*
Press ⌊⊙⌋ ⌊F5⌋ ⌊F4⌋ ⌊MENU⌋ ⌊F⌋ ⌊P⌋ ⌊ALT⌋+⌊H⌋ ⌊ALT⌋+⌊D⌋ ⌊ALT⌋+⌊L⌋ ⌊ALT⌋+⌊P⌋ ⌊F10⌋*.*
Press ⌊⇧⌋+⌊FN⌋ ⌊F2⌋ *to stop recording.*

24
Managing your applications

This chapter tells you how to
Add applications to your palmtop.
Start, quit, and delete application programs.
Manage memory in your palmtop.

Installing applications

There are two types of applications you can add to your palmtop:
A **DOS application** that runs under MS-DOS 5.0 on a computer equipped with a CGA monitor. *Installing DOS applications* is found in chapter 25.
A **System-Manager-compliant** (SMC) application that operates like one of the built-in applications—you can start it from any other application, and switch between it and other applications without closing it. These special applications are being developed by a number of vendors specifically for the HP 200LX. System-Manager-compliant applications developed for the HP 100LX will also run in the HP 200LX..
To install an HP 200LX-type (SMC) application:
Plug in or copy the program files:
  * If the application is on a memory card, turn off your palmtop and then insert the card into the plug-in slot (drive A).
  * If the application is on a floppy disk, use the Connectivity Pack to transfer the files from a desktop PC to your palmtop PC.

Add the program to the Application Manager to make it easy to run. If a program is not part of the Application Manager, then you must start it by going into DOS and typing its full path name.

To add a program to the Application Manager:

The Application Manager assigns a program a name, icon, and key that you can use to easily start any program or application from the &... (More Applications) screen.

Press &... F2 (Add) to display this screen:

```
                    Add an Application        05/20/95  8:31 am
Name:  ■
Path:

Key Assignment:

Comments:

Icon:


  Help                                            Cancel    OK
```

Add an Application Screen

Name: *Type a name (up to 14 characters) for the application. The name will appear with an icon on the &... screen. Create an underlined character by preceding it in the Name field with an &. That character will appear underlined in the Icons View. The built-in applications already use some letters, leaving these for your use: G, J, K, V, X, Y, Z. You can also use numbers. For example, if the name of your program is "Data1" and you want ① to start the program, type* Data&1. *If you use a number, it will always drop to the next line in the Icons View.*

Path: *Type the complete path and file name of your application's executable file (63 characters maximum). Example: C:_DAT\CHESS.EXM. A System-Manager-compliant (SMC) program has a .EXM extension.*

To specify the amount of memory to allocate for a DOS program (.EXE, .BAT, or .COM file) to run, append | *n* to the path name in the Path field, where *n* is the number of kilobytes to allocate. The | character is generated by pressing ⇧ \. Example: C:\Q.EXE|256 allocates 256 KB whenever Q.EXE is run.

To allocate all available memory for a DOS program to run, append just | to the path name. Memory-wise, this is equivalent to starting a DOS program from the Filer

(MENU Options DOS).

Key Assignment: You can start an SMC (*not* DOS)
application with a shortcut key combination from any other
application. To assign this key combination, press &asetkey;
and follow the instructions. F4 appears as **Set Key** if the
path name you entered above ends with an .EXM extension.
Comments: *Optional.*

- For a DOS communications program to run properly, this
  field must begin with "¿" (Fn !). This will also prevent
  switching to other applications.
- To suppress the message "Press any key to exit DOS" at
  the end of a DOS program, begin this field with "¿"
  (Fn ?).

Icon: If your purchased application includes its own icon
stored in a file with the extension .ICN, you'll see this icon as
you arrow through the choices. For an application that does not
have its own icon, there are three built-in icons and a blank
icon. The icon's name will identify it.
Press 10.

Icons view and list view of applications

To open the Application Manager, press &.... . Each System-
Manager-compliant and built-in application is represented in
both the Icons View and List View shown below. To see all the
icons or listings, use ▼ or F10 .

Icons View (press F8 **from the List View)**
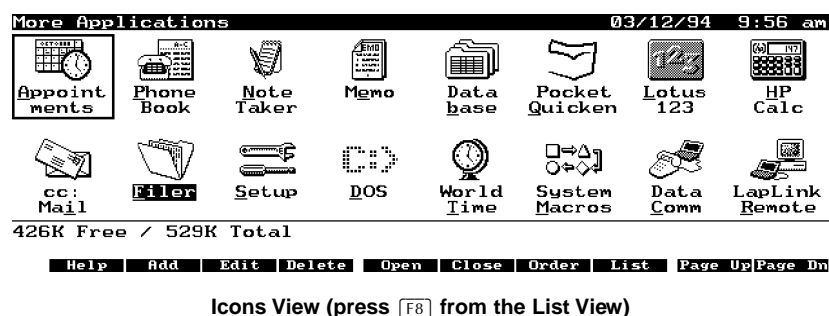
```
More Applications    426K Free / 529K Total    03/12/94 10:01 am
Application      │ Status  │ Memory │    Key     │ Comments
Appointments      Closed               Appt
 Phone Book       Closed               Phone
 Note Taker       Closed               Ctrl+Memo
 Memo             Closed               Memo
 Database         Closed               Ctrl+Phone
 PocketQuicken    Closed               Quicken
 Lotus 123        Closed               123
 HP Calc          Closed               Calc
 cc:Mail          Closed               Alt+123
 Filer            Asleep      58K      Filer
 Setup            Closed               Ctrl+Filer
 DOS                                   Ctrl+123
   Help  │  Add  │ Edit │ Delete │  Open │ Close │ Order │ Icons │ Page Up │ Page Dn
```

List View (press ⌷F8⌷ from the Icons View)

To edit the applications list:

Each application represented by an entry in the List View has a corresponding "Edit an Application" dialog box. For applications you've added, all text boxes in this dialog box can be edited. For built-in applications, only the "Comments" text box can be edited. You can also change the position of an application's entry in this list.

To edit an application's listing, use ⌷F3⌷ (Edit).

To change an application's position in both the List and Icons Views, use ⌷F7⌷ (Order).

Starting, quitting, and deleting applications

All built-in applications appear in the Application Manager (More Applications screen), as do supplemental applications that you have added to it (see the beginning of this chapter). If an installed application is *not* in the More Applications screen, you must run it from the DOS prompt (chapter 25). Enter the path and name of the application's executable file.

To start an application using the Application Mana-ger:

Press ⌷&...⌷. This displays either the **Icons view** or the **List view** of the More Applications screen.

In Icons view: Either press the letter-key for the letter

underlined in the applications name, or highlight the icon and press ⌷F5⌷ or ⌷ENTER⌷. Press ⌷▼⌷ or ⌷F10⌷ to see more icons.

In List view: Highlight the name of the application and press ⌷F5⌷ or ⌷ENTER⌷. Also, the Key column shows shortcut key sequences you can use to start the applications from any screen.

To quit an open application:

For built-in applications, press ⌷MENU⌷ ⌷Q⌷.

For added applications represented by an icon, arrow to the application's name in either the System Manager List or Icons View and press ⌷F6⌷ (Close).

For added applications not represented by an icon, type at the DOS prompt the application's command that closes the application ("quit," "exit," or some similar command). See your application's instructions.

To delete an application you added:

From the List View in the Application Manager, highlight the application you want to delete.
Press ⌷F4⌷ ⌷ENTER⌷.

Managing memory

Types of memory

There are three main types of internal palmtop memory:

System RAM, commonly called RAM in a desktop or portable PC.

RAM disk (drive C), analogous to a hard disk in a desktop PC.

ROM (drive D), containing files that you cannot change. They may only be read and copied. The built-in applications are contained here.

Determining memory usage

The bottom of the Icons View and the top of the List View in the Application Manager show the free and total memory in system RAM.

In the List View of the Application Manager, the third column shows the system RAM being used by each open application. The memory being used by 1-2-3 is flexible and depends on the total amount of available memory. The two numbers 1-2-3 shows are (1) the minimum memory required by the current worksheet and (2) the largest possible worksheet that could be created under the current conditions.

Maximizing system RAM

Available system RAM can be increased by doing one or more of the following:

Close all open applications.

Close the System Manager.

Change your AUTOEXEC.BAT file by *removing* commands for LapLink Remote Access and modem card support. (Type REM in front of the line to be removed.)

To check the amount of available memory:

At the DOS prompt, type chkdsk and press ENTER . The number of bytes free will be displayed.

To close all applications:

From within the Application Manager (&...), press MENU A L .

If you want to close individual applications from the Application Manager, highlight an application in the List View and press F6 .

If you want to access the DOS prompt when all applications are closed, press STRG + 123 .

To close the System Manager:

After completing this procedure, built-in applications *will not* be available until you restart the System Manager. You will be able to run only DOS programs.

In the Application Manager, press MENU A T*.*
Read carefully the displayed text.
Press ENTER*.*

To restart the System Manager:

From the DOS prompt, type 200 and press ENTER .

To change AUTOEXEC.BAT to release system RAM:

You shouldn't attempt this procedure unless you are quite familiar with MS-DOS.

Use the Filer to copy AUTOEXEC.BAT and CONFIG.SYS from drive D to drive C.
Use the Memo Editor to edit the copy of AUTOEXEC.BAT on drive C:
Scan the file for comments describing commands that can be removed to save system RAM.

Read the descriptions of those commands to make sure you can give up the functionality they offer.

Remove (REM) the commands.

Save the edited copy on drive C.

Reboot the computer.

If you want to return to using the default AUTOEXEC.BAT and CONFIG.SYS, simply delete the copies on drive C and reboot the computer.

25
MS-DOS in your palmtop PC

Your palmtop contains a version of MS-DOS 5.0 in ROM that is optimized for a palmtop PC. Some of the external commands have been omitted, and some important utility commands have been added.

This chapter covers:

The various ways to access the DOS prompt.

The palmtop System Manager program.

DOS file and directory conventions.

The palmtop DOS commands.

Tips on installing and running DOS applications on the palmtop.

Boot (startup) options.

If you want more information on the MS-DOS 5.0 operating system than is covered here, ask your local bookstore to recommend a book that meets your needs. There are many books written for readers of various levels of computer knowledge.

Many file and directory operations described in this chapter can also be performed in the Filer (chapter 22).

Accessing the DOS prompt

You have three primary ways to access the C:\> DOS prompt. Each method gives a different amount of memory (and flexibility) to the DOS environment. If you plan to start a DOS program from the prompt, choose the way that's best for the situation.

Press [CTRL]+[12₃] (or [&...] [D]) to open DOS as a shell that

acts as though it were an SMC (System-Manager compliant) application—one you can leave and then return to exactly where you left off. This method enables you to adjust the amount of System RAM that DOS uses by taking memory from the Clipboard and other applications (see *Allocating memory within system RAM* in chapter 21). However, you may not get enough memory this way to run a large application.

From the Filer press ⌈MENU⌉ ⌈O⌉ ⌈D⌉ to open DOS as a shell that also acts as an SMC program. This method automatically dedicates all available System RAM to DOS. This gives you a better chance of having enough memory to run a large application. However, you can't open a new SMC application unless you free up some memory by quitting DOS or closing other open SMC applications.

If you highlight in the Filer the name of an executable file and then press ⌈ENTER⌉, you'll open the DOS shell and run the program all at once.

To get back out of DOS, type `exit`.

Press ⌈&...⌉ to open the Application Manager, then press ⌈MENU⌉ ⌈A⌉ ⌈T⌉ ⌈ENTER⌉ (Terminate All) to close all open files, applications, and the System Manager itself. This method gives you the maximum amount of memory to run an application. However, because the System Manager is not running, you can't access any built-in applications (which means no alarms or appointments) until you restart the System Manager by typing `200` at the DOS prompt and pressing ⌈ENTER⌉.

About the System Manager Program

The System Manager opens automatically when you reboot because the last command in the AUTOEXEC.BAT file on drive D loads the System Manager program. It controls all built-in applications and all SMC (System-Manager compliant) programs you add.

You can leave a program or application operating under the control of the System Manager by starting another application, and then return to it later exactly where you left off.

Files and directories

A name for a file or directory has from one to eight characters. An *extension* to a file or directory name is one to three additional characters separated from the file name by a period. For example:

YOURFILE.NEW

→ Optional Extension
→ Period Separator
→ Filename
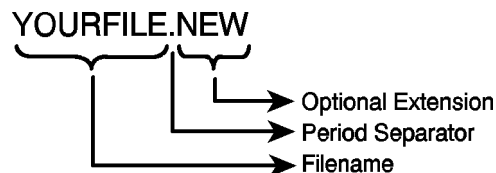
There is no distinction between uppercase and lowercase characters in file and directory names and extensions. Also, your palmtop implements the use of the standard DOS wildcard symbols (* and ?).

There is a limit of 64 files in a root directory. A:\ is the root directory on drive A, for example. To create more files, create subdirectories for them.

Valid Characters for File and Directory Names

Letters A through Z	Numbers 0 through 9	Underscore (_)
Caret (^)	Dollar sign ($)	Tilde (~)
Exclamation point (!)	Number sign (#)	Percent sign (%)
Ampersand (&)	Hyphen (-)	Braces ({})
Parentheses ()	At sign (@)	Apostrophe (')
Grave accent (')		

Avoid using the following file names. They are already used by the operating system:

Reserved File Names

AUX	CLOCK$	COM1	COM2
COM3	COM4	CON	LPT1
LPT2	LPT3	NUL	PRN

The following extensions are reserved. You can use them if you're creating any of the indicated file types:

Reserved File Name Extensions

Extension	File Type
BAK	Backup files
BAT	DOS batch files
CHK	Assigned to files recovered by CHKDSK
COM, EXE	Program files
OVL	DOS uses this extension for overlay files
REC	DOS uses this extension for RECOVERed files
SYS	Used for device drivers
$$$	DOS uses this extension for temporary files

The following extensions are used by certain types of files associated with the built-in applications.

Special Palmtop File Name Extensions

Extension	File Type
ADB	Appointment Book files
ATT	cc:Mail message attachment
BAK	1-2-3 backup worksheets
CAP	Datacomm capture files
CCM	cc:Mail inbox
CFL	Calculator cash flow lists
CTF	Character translation files for Datacomm
DCF	Datacomm configuration files
DOC	Memo Editor memo files and Quicken print files

DRV	cc:Mail communications driver
ENV	Holds application info between sessions
EQN	Solver equation files
EXM	System Manager compliant programs
FCF	Filer configuration files
FLD	cc:Mail folder
FON	MS Windows format files
GDB	Database files

Special Palmtop File Name Extensions (continued)

Extension	File Type
ICN	Added SMC application's icon file
IDX	cc:Mail address book index
INI	cc:Mail host (Post Office) config file
KIT	Keyboard Information files
LCF	Script (logon configuration) files for Datacomm
MAC	System Macros files (1-10 macros/file)
MDM	Modem control file for comm driver
MSG	cc:Mail messages
NDB	Note Taker note files
PCF	Printer configuration files
PCX	Graphics (Topcard) files
PDB	Phone Book files
PIC	1-2-3 graphs
PRN	1-2-3 print or text files
PDT	Pocket Quicken data files
STA	Calculator statistics lists
TMP	Temporary files
WDB	World Time files

WK1   1-2-3 worksheet files

DOS commands in your palmtop

The palmtop's operating system contains two types of commands:

Standard DOS commands, including CONFIG.SYS, MS-DOS, and Batch commands. The external MS-DOS commands are located in D:\DOS. These are described in the following tables.

Utility commands created specifically for the palmtop. The utility commands are located in D:\BIN. These are described following the standard command tables.

You can display help information on any of the palmtop's standard DOS 5.0 commands by typing the command name followed with /? and pressing ENTER. For example, to display information on the MORE command, you type MORE/? and press ENTER.

Standard DOS commands

DOS Command Syntax

Symbol	Meaning
COMMAND	Command name.
[ ]	Word or letter enclosed in brackets is optional.
|	Indicates a choice must be made between two entries (ON | OFF).
drive:	Drive designator.
path	List of directories that DOS must go through to get to a specific file or directory.
filename	Name of a file.
…	Indicates an entry may be repeated.

The standard MS-DOS 5.0 commands in the palmtop are listed

in two tables. The first lists CONFIG.SYS commands, and the second lists MS-DOS and Batch commands.

CONFIG.SYS Commands Available in Your Palmtop

Command Description

BUFFERS   Allocates memory at system start for a specified number of disk buffers.

DEVICE   Specifies the location and name of the device driver you want to load.

FCBS   Specifies the number of file control blocks that DOS can have open at the same time.

FILES   Sets the number of files that DOS can access at one time.

INSTALL   Loads a memory-resident program into memory when you start DOS.

LASTDRIVE   Specifies the maximum number of drives you can access.

SHELL   Specifies the location and name of the command interpreter used by DOS.

STACKS   Supports the dynamic use of data stacks to handle hardware interrupts.

SWITCHES   Forces an enhanced keyboard to behave like a conventional keyboard.

MS-DOS & Batch Commands Available in Your Palmtop

Command Description

ASSIGN   Redirects requests for disk operations on one drive to a different drive.

ATTRIB   Displays or changes file attributes.

BREAK   Sets or clears extended CTRL+C checking.

CALL   Calls one batch program from another.

CHDIR or CD   Displays the name of or changes the current

directory.

CHKDSK   Checks a disk and displays a status report.

CLS   Moves the cursor to the upper left corner and
clears the screen.

COMMAND   Starts a new instance of the DOS command
interpreter.

COPY   Copies one or more files to another location.

CTTY   Changes the terminal device used to control your
system.

DATE   Displays or sets the date.

DEBUG   Runs Debug, a program testing and editing tool.

DEL or ERASE Deletes one or more files.

DIR   Displays a list of files and subdirectories in a
directory.

DOSKEY   Edits command lines, recalls DOS commands, and
creates macros.

ECHO   Displays messages, or turns command-echoing on
or off.

EXIT   Quits the COMMAND.COM program (command
interpreter).

FOR   Runs a specified command for each file in a set of
files.

FORMAT   Formats a disk for use with DOS.

GOTO   Directs DOS to a labelled line in a batch program.

IF   Performs conditional processing in batch
programs.

MEM   Displays the amount of used and free system
memory.

MKDIR or MD Creates a directory.

MODE   Configures system devices.

Command Description

Command	Description
MORE	Displays output one screen at a time.
PATH	Displays or sets a search path for executable files.
PAUSE	Suspends processing of a batch program and displays the message Press any key to continue ….
PROMPT	Changes the DOS command prompt.
REM	Records comments (remarks) in a batch file or in a CONFIG.SYS file.
RENAME or REN	Renames a file or files.
RMDIR or RD	Removes (deletes) a directory.
SET	Displays, sets, or removes DOS environment variables.
SHARE	Installs file-sharing and locking capabilities on your hard disk.
SHIFT	Changes the position of replaceable parameters in a batch file.
TIME	Displays or sets the system time.
TYPE	Displays the contents of a text file.
VER	Displays the DOS version.
VERIFY	Tells DOS whether to verify that your files are written correctly to a disk.
VOL	Displays the disk volume label and serial number, if they exist.
XCOPY	Copies files (except hidden and system files) and directory trees.

Special utility commands

CIC100 /GEN 1

Note

In this manual the command "CIC100 /GEN 1" is referred to as "CIC100." However, when you use the command, the /GEN 1 parameter should always be specified.

CIC100 (Card Installation Client) is a TSR (terminate and stay resident) program that performs recognition and configuration of PCMCIA modem cards. If CIC100 recognizes a given modem card, the modem and the plug-in slot will be configured as Com2. For more information see *Connecting to a card modem* in chapter 27.

FDISK100

Performs a low-level initialization operation on an HP Flash Disk in drive A. It is not applicable to other memory cards. *See your HP Flash Disk Card manual before using this command.*

DISPCTL

DISPCTL [+C | -C] [+K | -K]
Enables or disables the ⌐MENU⌐+arrow key movement and/or the automatic cursor tracking while in the MS-DOS command processor.

+C   Enables cursor tracking.

-C   Disables cursor tracking.

+K   Enables ⌐MENU⌐+arrow key movement.

-K   Disables $\boxed{\text{MENU}}$ +arrow key movement.

Both options can be used together, but you must use at least one of them with the command.

SERCTL

SERCTL [/O | /W | /I]

Controls power to the infrared (IR) and wired serial ports. This command is for use when running programs from the DOS prompt; the built-in applications handle powering the ports automatically.

/O   Turns off power to the active port. Turning off the I/O ports while in the MS-DOS command processor results in significant power savings, thus extending battery life.

/W   Powers up and activates the wired serial port. Does not affect the baud setting.

/I   Powers up and activates the infrared (IR) port. Changes the baud setting to 2400.

KEYBEZ

KEYBEZ [*filename.kit*] [*kitfile option*]

[*filename.kit*] Specifies the name of the .KIT file to be loaded.

[*kitfile option*]   Specifies one of the supported options available in the selected .KIT file.

This is a palmtop-specific NLS (National Language Support) utility command. With KEYBEZ you can change the country-specific defaults for displaying dates, times and currency. You can also use KEYBEZ to change character sort order, file name characters and uppercase/lowercase conversion information.

KEYBEZ can also be used to load keyboard mapping support from one of the available KIT (Keyboard Information Table) files.

KEYBEZ includes NLS information as well as Extended

Country Information and Code Page support. The language/ country selection is determined by which KIT file is chosen and which option is selected from the available options in that particular KIT file.

KEYBEZ will enforce the selected Country defaults within System Manager applications if the System Manager is active. While KEYBEZ is loaded, the Options International dialog box in the Setup application is modified to display the defaults selected by KEYBEZ. The Country and DOS Code Page sections of the Setup International screen are deactivated since KEYBEZ controls these choices.

The first time executed, if given no arguments, KEYBEZ expands the default KEYBEZ.KIT file and the default KEYBEZ.FON file from D:\BIN. These files are placed in C:\ as HP100LX.KIT and HP100LX.FON. The next time KEYBEZ is executed with no arguments, it will refer to C:\HP100LX.KIT for options to display. The languages supported by these files are described in *Apendix D*.

The .FON (font) file is a standard Microsoft Windows .FON format file containing 4 bit-mapped fonts in the sizes needed by the palmtop (6x8, 8x8, 10x11, and 16x12). The built-in .FON file provides additional characters to support Cyrillic, Greek, and Turkish.

KEYBEZ replaces or enhances the functionality of the following MS-DOS Commands: COUNTRY, KEYB, MODE, and NLSFUNC.

KIT files built into the palmtop include:

KEYBEZ.KIT with KEYBEZ.FON (South & East European
 Country Support *See Apendix D.*)
COUNTRY.KIT (Selections with Default Code Page)
ACOUNTRY.KIT (Selections with Alternate Code Page)
LATIN.KIT (Selections with Default Code Page)
ALATIN.KIT (Selections with Alternate Code Page)
NORDIC.KIT (Selections with Default Code Page)

ANORDIC.KIT (Selections with Alternate Code Page)

Supported Country NLS Defaults

Country	Code	Default Code Page	Alternate Code Page

For COUNTRY.KIT and ACOUNTRY.KIT:

Country	Code	Default Code Page	Alternate Code Page
Australia	au	437	850
Canada — Englishca		437	850
French	fr	850	437
Germany	gr	850	437
Italy	it	850	437
United Kingdom	uk	437	850
United States	us	437	850

For LATIN.KIT and ALATIN.KIT:

Country	Code	Default Code Page	Alternate Code Page
Brazil	br	850	437
Latin America	la	850	437
Portugal	po	850	860
Spain	sp	850	437

For NORDIC.KIT and ANORDIC.KIT:

Country	Code	Default Code Page	Alternate Code Page
Denmark	dk	850	865
Finland	su	850	437
Iceland	ic	850	n/a
Netherlands	nl	850	437
Norway	no	850	437
Sweden	sv	850	437

How To Use KEYBEZ

The general process is to expand the compressed .KIT file and place it on the C drive as HP100LX.KIT. This will give KEYBEZ access to all information in the .KIT file without needing to expand it each time before accessing it.

To expand a KIT file:

If, for example, you want to expand `d:\bin\nordic.kit` before loading the support for Denmark, do the following:

Use the compress/expand utility XINE to expand the .KIT file and install it onto the C drive.

To expand, type the following command at the DOS prompt:

```
XINE D:\BIN\NORDIC.KIT C:\HP100LX.KIT
```

To create a modified AUTOEXEC.BAT file:

The following assumes that you want to use the default NLS values for Denmark and that you have already expanded the .KIT file.

Use the Memo Editor to open your AUTOEXEC.BAT file (located in the root directory C:\ or D:\)

Add the line `KEYBEZ DK` *just before the* `200` *line.*

Save your new version of the AUTOEXEC.BAT file in the root directory C:\.

Ensure that your CONFIG.SYS file is in the root directory C:\. Copy it from D:\ if necessary.

Close all open applications in preparation to reboot.

Reboot by pressing CTRL + ALT + DEL .

This AUTOEXEC.BAT file will set up the following configuration:

Danish conventions for date, time, currency, character sort order, and lowercase/uppercase.

Default Code Page 850.

If you want to install the default NLS values for Denmark with the Alternate Code Page, expand the .KIT file by executing `XINE D:\BIN\ANORDIC.KIT C:\HP100LX.KIT`.

The modified AUTOEXEC.BAT file created above will now provide:

Danish conventions for date, time, currency, character sort order, and valid file names.

Alternate Code Page 865.

Note

Lotus 1-2-3 only supports code page 850. If KEYBEZ is used to configure any code page other than page 850, your printer must be configured for

that other code page.

Files you create may become inaccessible when you use another code page. If you name a file when using one code page, then switch to another code page whose characters are not compatible, you may not be able to recover the file. To recover it, you may have to switch back to the code page you used when you named the file.

Note

If KEYBEZ is active and Terminate-All is executed to quit the System Manager (&... `MENU` `A` `T` *), restart the System Manager by pressing* `CTRL` *+* `A` *+* `DEL` *rather than by entering* 200 *at the DOS prompt. This will ensure that KEYBEZ is reconnected correctly to the System Manager.*

For more information on Eastern European language support, see Apendix D.

KIT Country Options

You may see which countries are supported by a particular KIT file by typing KEYBEZ followed by the .KIT file name. (e.g. KEYBEZ D:\BIN\ACOUNTRY.KIT) This will replace any existing C:\HP100LX.KIT file with the expanded version of the .KIT file you specify.

KIT File Format

Documentation of the KIT file format is included in the KEYBEZ.KIT file which is built into your palmtop. You may view this file by executing XINE D:\BIN\KEYBEZ.KIT C:\HP100LX.KIT and then viewing the file C:\HP100LX.KIT.

Installing DOS applications

To install a DOS application:

Probably the easiest way to install a DOS application involves using LapLink Remote Access, part of the Connectivity Pack. See the *Connectivity Pack User's Guide* and your application

manual for specific information. You can install the application on either drive C or drive A (a memory card) in your palmtop. The Application Manager enables you to assign to a program a name, icon, and shortcut key for starting the program from the $\boxed{\&...}$ (More Applications) screen. If a program is not System-Manager compliant, you must start it by going into DOS and typing the full path name or highlighting the file name in the Filer and pressing $\boxed{\text{ENTER}}$.

To add a DOS application to the Application Manager:

Press $\boxed{\&...}$ $\boxed{\textbf{Add}}$ and fill out the fields as explained in the beginning of chapter 24. You cannot make a key assignment, however.

To specify the amount of memory to allocate for a DOS pro-
gram (.EXE, .BAT, or .COM file) to run, append |n to the
path name in the Path field, where n is the number of
kilobytes to allocate. Example: C:\Q.EXE|256 allocates 256
KB whenever Q.EXE is run.

To allocate all available memory for the program to run,
append just | to the path name. Memory-wise, this is
equivalent to starting a DOS program from the Filer ($\boxed{\text{MENU}}$
Options DOS).

To run a DOS communications program from the System
Manager, the Comments field must start with "¡" ($\boxed{\text{FN}}$ $\boxed{!}$).

To omit the message "Press any key to exit DOS" at the end of
a DOS program, the Comments field must start with "¿" ($\boxed{\text{FN}}$
$\boxed{?}$).

Tips on running DOS applications

To execute [F11] and [F12] on the palmtop:

To execute:	Press:
[F11]	[FN] [1]
[F12]	[FN] [2]

To generate IBM Numeric Keypad Keys on the palmtop

While the palmtop has a numeric keypad, the keycodes associated with those keys correspond to the top-row number keys on an IBM-compatible PC keyboard. If your program asks you to press either an unshifted or shifted key on the number pad of an IBM-compatible PC keyboard, press instead the keys shown in the following table to get the same result.

How to Execute IBM Numeric Keypad Keys

To execute IBM key:	Press on palmtop:	To execute IBM key:	Press on palmtop:
[0]	[⇧] [MENU]+[0]	[←]	[MENU]+[4]
[1]	[⇧] [MENU]+[1]	[→]	[MENU]+[6]
⋮	⋮	[Home]	[MENU]+[7]
[9]	[⇧] [MENU]+[9]	[↑]	[MENU]+[8]
[.]	[⇧] [MENU]+[.]	[PgUp]	[MENU]+[9]
[DEL]	[MENU]+[.]	[+]	[MENU]+[+]
[Ins]	[MENU]+[0]	[-]	[MENU]+[-]
[End]	[MENU]+[1]	[*]	[MENU]+[*]
[↓]	[MENU]+[2]	[/]	[MENU]+[/]

PgDn   MENU + 3

To load a TSR:

Do *not* load a TSR from a DOS prompt accessed from the
Application Manager or from the Filer.
Make sure the System Manager is closed (press &... MENU A T ENTER *).*
Run the TSR.
Open the System Manager (at the DOS prompt, type 200 *and press* ENTER *).*
If your TSR requires a keystroke sequence like CTRL + ⇧ to
become active, press CTRL + ⇧ then press ⇧ again to
turn off the shift.

To run a program from drive A:

Most programs run from drive A in the normal way. But some
will not because they think it's a floppy drive. If you have
trouble running your program from drive A, try running your
program from drive E instead of drive A. This makes use of a
command in AUTOEXEC.BAT: assign e:=a:.
If trouble persists, try reinstalling your program to drive E, and
then run the program from drive E.

Controlling the appearance of a DOS display

You can control a DOS or DOS application screen in these
ways:
Change the position of the annunciators.
Enlarge characters (ZOOM in on the display).
Move around in an enlarged-character display by moving the
    cursor or by moving the window.
Change black to white and white to black.
Change shades of gray.
Details about these methods of control follow.

To change the position of the annunciators:

Press ON + = to cycle through three states (left, right, off).

To zoom on a DOS display:

Press ⌞FN⌟ ZOOM to see an enlarged portion of the original 80-character by 25 line display. If the cursor was at the lower-left corner, it is still at the lower-left corner after enlargement.
Press ⌞FN⌟ ZOOM two more times to cycle through the zoom options and return to the original, unenlarged display.

ZOOM does not work on applications operating in graphics mode, but does work in text mode.

To view all parts of a zoomed display:

When characters are enlarged, you can view all parts of the screen in one of two ways:
Move the cursor past the end of the window and watch the window move character by character.
Use ⌞MENU⌟+⌞▶⌟, ⌞◀⌟, ⌞▲⌟, and ⌞▼⌟ to move the entire window.

To invert DOS display colors:

You can invert a DOS or other text screens as well as graphic screens to make black white and white black.
Press ⌞ON⌟+⌞/⌟.
To return to the original display, press ⌞ON⌟+⌞/⌟ again.

To change gray shades:

Applications that use a number of shades of gray to enhance their graphics can be run in the palmtop's DOS. However, your palmtop offers four shades of gray for such applications rather than the larger number provided by other PCs. Your palmtop allows you to choose between two sets of these four shades that might produce a more pleasing graphic image. In general, however, it might be best to run such programs with their options set to either CGA mono, LCD, monochrome, or else change the color settings to make them easier to read.
Press ⌞ON⌟+⌞*⌟ to toggle between two settings.

Customizing your system

You might want to modify your AUTOEXEC.BAT and CONFIG.SYS files to customize the way your palmtop works. Your palmtop was shipped with those two files located in the root directory of drive D. You can modify copies of files on drive D using the Memo Editor, then save them on drive C or A.
If you save copies of AUTOEXEC.BAT and CONFIG.SYS on drive A or C, the next time you reboot your palmtop those files will be executed.

About the MS-DOS startup procedure

When you reboot your palmtop:

A search is made for the CONFIG.SYS file in the root directory of the palmtop's drives in this order: A, C, D. The CONFIG.SYS file in a new palmtop is on drive D.

As soon as the CONFIG.SYS file is found, the drive on which it was found is defined as the default drive. In a new palmtop, the default drive is defined as D.

The commands found in CONFIG.SYS are executed.

A search is made in the newly-defined default drive for an AUTOEXEC.BAT file.

If an AUTOEXEC.BAT file is found, the commands in that file are executed. If an AUTOEXEC.BAT file exists but is not found on the default drive, the commands in that file are not executed.

Boot (reset) options

When you reboot your palmtop, the message `Press ALT for Boot Options...` is displayed briefly, then disappears automatically as the boot process continues. If you press ⌈ALT⌋ during the brief time that message is displayed, you see the Select Default Drive Option screen:

*** Select Default Drive Option ***

Unless changed at this screen, the default drive will be the first of drives A, C, and D found to contain a config.sys file in the root directory. The options below allow control of default drive

and startup file processing. This selection controls this reboot only.

Make A default drive; process startup files.
Make C default drive; process startup files.
Make D default drive; process startup files.

Make A default drive; do not process startup files.
Make C default drive; do not process startup files.
Make D default drive; do not process startup files.

Use normal default drive determination.

Enter selection [7]:

Why These Options Are Offered. It might help to give an example showing the usefulness of one of the options. Say you load on drive C a DOS application plus a special driver required by that application. You copy your startup files, CONFIG.SYS and AUTOEXEC.BAT, from drive D to C and modify the copies on C incorrectly in an attempt to satisfy the requirements of the special driver. When you boot, the system locks, since the first start-up files it found as it searched drives A, C, and D were on C. You try to boot again, but this time you press [ALT] to display the *** Select Default Drive Option *** screen. You select option 3, Make D default drive; process startup files. When you press [3], the boot continues successfully, since the original startup files on drive D were executed. Now you can inspect the modified copies of the startup files on drive C and attempt a fix.

To select a default drive option:

Press [CTRL]+[ALT]+[DEL] (reboot) or [CTRL]+[⇧]+[ON] (hard reset) and then press [ALT] immediately. The *** Select Default Drive Option *** screen appears.

Press the number key of the option you want. You need not press [ENTER]. *To select the default option 7, press* [ENTER]. *After you select your option, the boot continues.*

26
Datacomm

Connect Serial Port to:
- Modem
- Personal Computer

Full VT-100 or ANSI Terminal

MODEM

Telephone line to connect to:
- Compuserve, MCI, Dow Jones, GEnie (using built-in settings)
- Other remote networks or computers
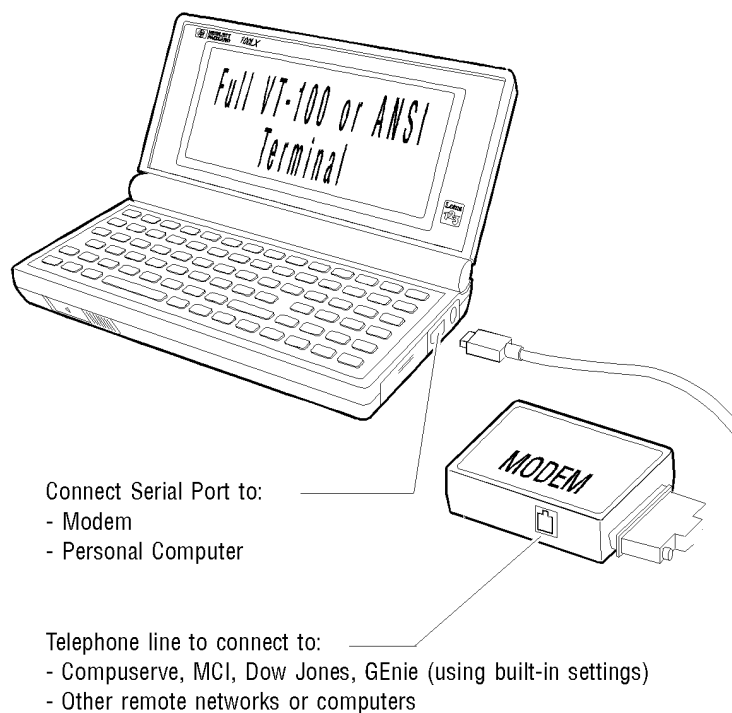
The general procedure for using Datacomm to turn your palmtop into a terminal is to:

Configure your palmtop to match the requirements of the host system.

Prepare the hardware to physically connect to the host system (either directly or through a modem).

Make the connection and access the information you need.

These steps are covered in detail in the rest of this chapter. In addition you'll find related information on changing the

number of characters in the display, capturing data in a file, automating procedures with script files, and translating characters between code pages.

To start Datacomm, press [&...] [C].

Configuring for Datacomm

Determine the host configuration requirements and compare them with the palmtop default settings:

The Default Configuration Settings

Display	Setting	Choice/Description
Settings	Baud	2400
dialog box	Interface	Com1
	Parity	None
	Data Bits	8
	Stop Bits	1
Advanced Settings	Emulation	VT100
dialog box	Backspace Key	Backspace
	Local Echo	Disabled
	Wrap Long Lines	Disabled
	Scroll	0 lines
	Flow	None
	Enq-Ack	Disabled
Phone	Type	Tone
dialog box	Timeout	30 seconds
	Automatic Redial	Disabled

To change the basic configuration settings:

In Datacomm, press `MENU` `C` `S` *to display the choices covered in the
  following table. Tab to cycle between the boxes or press* `ALT` *together with
  the underlined letter to reach a particular box. To display all choices in a
  box containing a ▐ symbol, press* `◄` *and* `▲` *several times. Pressing*
  `ALT` + `◄` *will display several—but not necessarily all— choices.*
*If you want to make more choices, follow one or more of the next two
  procedures. Otherwise, press* `F10` *to complete your choices.*

Choices in the Settings Dialog Box

Setting	Choices/Description
Baud rate	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Interface	Com1, Com2, Alternate, Infrared
Parity	None, Odd, Even, Mark, Space
Data bits	7, 8
Stop bits	1, 2
Open	Displays the Open Configuration File dialog box.
Save as	Displays the Save Configuration File dialog box.
Advanced	Displays the Advanced Settings dialog box.
Phone	Displays Phone Settings dialog box.
Defaults	Return settings to their default values.

To change the phone configuration settings:

This is also where you add the phone number for a modem to
dial.
In the Datacomm Settings screen (press `MENU` `C` `S`),
press `F5` to display the choices covered in the following table.
Specify your choices using `TAB`*, arrow keys,* `SPACEBAR`*, and typing.*
Press `F10`*.*

Choices in the Phone Settings Dialog Box

Setting	Choices/Description
Number	Phone number to be dialed.
Type	Tone, Pulse.
Timeout	Call ends in specified seconds if no answer.
Automatic Redial	Check to enable.

To change the advanced configuration settings:

In the Datacomm Settings *screen (press* MENU C S *), press* F4 *to display the choices covered in the following table.*
Specify your choices using TAB *, arrow keys,* SPACEBAR *, and typing.*
To display the Download Directory dialog box, press F6 *.*
To display the Logon File dialog box, press F7 *.*
To display the Remap File dialog box, press F8 *.*
Press F10 *to make your choices effective.*

Choices in the Advanced Settings Dialog Box

Setting	Choices/Description
Emulation	VT100, ANSI, TTY, MAP. (MAP emulates a "glass tty" terminal, except otherwise ignored control codes are mapped to displayable characters—control code 1 is displayed as ^A, control code 2 as ^B, and so on.)
Backspace key	Backspace, Delete. Backspace backs up one character, while Delete backs up and deletes one character.
Local Echo	When enabled, characters you transmit will display on your screen.
Wrap long lines	When enabled, long lines are wrapped that otherwise would disappear off the right edge of the screen.
Scroll	Defines the size of the scroll buffer that allows you to view up to 99 previously displayed lines.
Modem Init	Accepts a command line. For Hayes and Hayes-compatible modems, the command line starts with AT or at and ends with a carriage return. Many commands can be issued to

your modem by making choices in the Settings, Advanced Settings, and Phone dialog boxes. Use the Modem Init text box to enter other commands.

Flow control:

RTS-CTS   Request to send, clear to send. (hardware)

XON-XOFFTransmission on, transmission off. (software)

None   No flow control.

Enq-Ack   Enquire-Acknowledge.

Download   Displays the Download Directory dialog box.

Logon   Displays the Logon File dialog box.

Remap   Displays a Remap File dialog box.

Using configuration files

If you save configuration settings in a file, reconfiguring your palmtop for datacomm becomes as easy as opening a file.

To save the current configuration settings in a file:

In Datacomm, press MENU C S F8 .

Type a file name with no extension. The first character you type will erase .DCF *and display that character. The extension .DCF will be added to your file name automatically. Your file will be in the C:_DAT directory unless you specify a different directory.*

Press F10 F10 *to save your settings in your new file and to return to Datacomm's opening display.*

To choose an existing configuration file

In Datacomm, press MENU C S F7 .

If your file is saved in a directory other than C:_DAT, tab to the Directories *list box, highlight the correct directory, and press* ENTER *.*

Tab to the Files *list box, highlight the correct file name, and press* ENTER *.*

Press F10 *.*

Built into your C:_DAT directory are configuration files for four commercial information services: CompuServe, MCI, Dow Jones News Retrieval, and GEnie.

To choose the default configuration settings:

In Datacomm, press ⌈MENU⌉ ⌈C⌉ ⌈S⌉ ⌈F6⌉. All configuration settings are returned to their default settings.

Preparing your hardware

You need the HP F1015A Serial Cable to connect either to a modem or directly to the host system.
If you're using a modem, see chapter 27 for information on connecting a modem to your palmtop.
If you're connecting directly to the host system, use the HP F1015A Serial Cable and the appropriate adapter from the HP F1023 Adapter Kit. Connect the 10-pin end of the cable to the Com1 port on the palmtop—*make sure the HP logo faces up when you insert it*—and connect the other end of the cable (possibly with an adapter) to the host serial port.

Note

Connecting cables and adapters to computers can be a tricky procedure because the required adapters can vary with different computers. If you need help with this process, contact a local electronics dealer or the manufacturer of the computer you're trying to connect.

Making serial connections

In most cases, the serial cable and 25-pin adapter provide the desired serial connection between the palmtop and the other PC. But if you're connecting the palmtop to a modem or to another type of serial connector, you will need to use different adapters. The following table shows several serial connections.

Serial Connections for the Palmtop

To connect to...	Use...
PC Serial Port (9-pin male)	Serial cable[1]
PC Serial Port (25-pin male)	25-pin[1] adapter — Serial cable[1]
PC Serial Port (25-pin female)	Printer[2] adapter — Serial cable[1]

Gender[3] converter — 25-pin[1] adapter — Serial cable[1]

Modem (25-pin female)   Modem[2] adapter — Serial cable[1]

Null[3] modem — Gender[3] converter — 25-pin[1] adapter — Serial cable[1]

[1] From Connectivity Pack or HP F1015A Serial Cable.

[2] From Connectivity Pack or HP F1023 Connector/Adapter Kit.

[3] From electronics supply store or computer dealer.

The following table and figure show the pin assignments and pin locations for the palmtop Com1 serial port and the 10-pin connector. This information is important if you need to get help connecting to a remote system or other device.

Pin Assignments for the palmtop Port and the 9-Pin Connector

Port Pin No.	Signal	Connector Pin No.	Port Pin No.	Signal	Connector Pin No.
1	Data carrier detect	1	6	Data set ready	4
2	Receive data	3	7	Request to send	8
3	Transmit data	2	8	Clear to send	7
4	Data terminal ready	6	9	Ring indicator	9
5	Signal ground	5	10	Shield	5
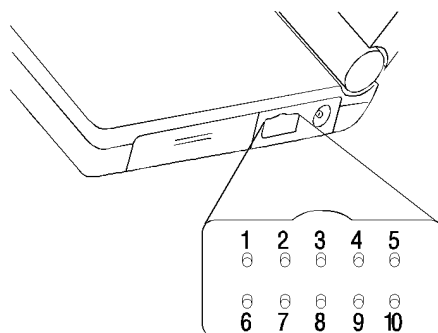
Pin Numbers

Pin assignments on the HP F1015A serial cable are for standard RS232 DB9 connectors.

Beginning and ending a communication session

Once your palmtop is properly configured and connected to a modem or host system, you're ready to communicate.

To begin data communication:

Press ⌷F10⌷ to initiate communication.

To end data communication:

If necessary, log off the remote system.

To close the data communication session:
    If you're connected via modem or IR, press ⌷F10⌷.
    If you have a direct connection, just disconnect the cable.

To close the Datacomm application, press ⌷MENU⌷ ⌷Q⌷*. The last configuration settings you used will be active when you return.*

Hangup

The hangup command is executed automatically whenever you quit Datacomm (⌷MENU⌷ ⌷Q⌷ *).*

Example: Communicating with CompuServe. CompuServe is a popular bulletin board service used worldwide for communication, information, and software. Call (800) 848-8199 in the U.S. to get an identification number, password, and local phone number. Outside the U.S., call 1 (614) 457-0802.

Start Datacomm (⌷&...⌷ ⌷C⌷ *).*
Select ⌷MENU⌷ *Connect Settings and press* ⌷F7⌷ *(Open). This displays a list of available configuration files. These files provide standard information to access the listed communication services.*
Tab to the Files box to highlight COMPUSRV.DCF, the configuration file for CompuServe.
Press ⌷F10⌷ *(OK).*
Press ⌷F5⌷ *(Phone) and type the local "node" CompuServe phone number. It's best to omit hyphens and parentheses. If necessary, use a comma to create a pause. Example:* 9,15039672460 *dials an outside line to call long-distance to (503) 967-2460.*
Press ⌷F10⌷ ⌷F10⌷ *(OK OK) to save this information in COMPUSRV.DCF.*
Press ⌷F10⌷ *(Connect). When the connection is made, you will see*

Press [ENTER]. *Enter* CIS *as host, then your ID number and password as requested.*

When you're finished communicating, log off from CompuServe by typing bye. *Then press* [F10] *(Hangup).*

Customizing your display for Datacomm

To change between 64x18 and 80x25 displays:

Press [FN] ZOOM. The display toggles between 64x18 and 80x25 characters.

To move the 64x18 window around the 80x25 screen:

The 64x18 character display is a moveable window into the 80x25 screen.

Window Moving Keys

Keys	Description
[ALT]+[▲]	Move up one line.
[ALT]+[▼]	Move down one line.
[ALT]+[►]	Move right one character.
[ALT]+[◄]	Move left one character.
[CTRL]+[►]	Move right one screen.
[CTRL]+[◄]	Move left one screen.
[ALT]+[FN] PGUP	Scroll up one screen.
[ALT]+[FN] PGDN	Scroll down one screen.
[ALT]+[FN] HOME	Return to the current cursor position.

To scroll up to 99 lines:

You can scroll text to see up to 99 previously displayed lines:

Select [MENU] *Connect Settings and press* [F4] *(Advance). Press* [ALT] + [S] *to move to the Scroll box.*

Type a number from 0 to 99 to set the size of the scroll-back buffer.

Press [F10] [F10] *(OK OK).*

Capturing data in a file

To capture data in a file:

In Datacomm, press F5 *(Capture).*

Type a file name with no extension. Your file will automatically be given the extension .CAP and will be in the C:_DAT directory (unless you specify another directory).

Tab to the Control code *option box and arrow to highlight a filtering option:* Omit*,* Map to letters*, or* Capture as is*. See the table below.*

Press F10 *(OK). All characters received on the serial port will be stored in the specified capture file.*

Press F5 *(StopCap) to stop the capturing.*

Capture File Filtering Options

Option Description

Omit	ASCII control codes are filtered out, not captured.
Map	Control codes are mapped to displayable characters in the capture file. For example, control code 1 is written as ^A, 2 as ^B, 3 as ^C, and so on.
Capture	No filtering. No changes to control codes.

Automating datacomm procedures

A **script file** enables you to automate a logon procedure. When you include a script file name as part of your configuration, the script is executed when a remote connection is made. Here is a sample script file that would log L. Harrington on to his e-mail system:

```
 Hello |
{Enter your login name:}
L. Harrington |
{Enter your password:}
Cougar |
```

Once you know the host system's requirements for logging on, use the Memo application to create a script file using these script characters:

Character Description

{…}   The left and right braces are used to enclose a string
        of characters that comes from the remote
        system. A string in braces instructs the
        palmtop to wait until an exact match of that
        string is received and then continue with the
        script. If a matching string is not received
        within 30 seconds, the script quits execution.

^   Indicates that the uppercase character following it is
        a control character. For example, ^A
        represents control-A. If you want to represent
        the character ^, use ^^. If you want to
        represent control-, use #1E.

Interprets the two characters following it as the hex
        number to represent an 8-bit character. For
        example, #1E represents control-. If you
        want to represent the character #, use ##.

| Represents a carriage return.

~   Causes a 1-second pause.

@e   Turns echo pacing on. Echo pacing requires the
        remote system to "echo" back each sent
        character before another one is sent.

@n   Turns echo pacing off.

@b   Sends a break signal for 1 second.

@@   Sends a single @ character.

@f[*path*] Sends the file identified by the DOS path *as is*—no
        characters are translated, including control
        characters. You must include the square
        brackets around the path, which includes the

file name.

The script starts *after* the modems have connected and the message Connect *nnnn* (where *nnnn* is the baud rate) appears. Use the Memo Editor to create your ASCII script file (no special formatting), and save it in C:_DAT with a .LCF file extension.

To specify an existing script file for a logon procedure:

Select [MENU] Connect Settings and press [F4] [F7] (Advance Logon).
Specify your .LCF file.
Press [F10] [F10] [F10] to return to Datacomm's opening display.

To use a script file while a Datacomm connection is active:

Complete your logon.
At the point in the connection process where you want your script file to take effect, press [MENU] [C] [R] [TAB], arrow to the script file you want, and press [F10].
To cancel script file execution, press [CTRL] + [BREAK] ([CTRL] + [MENU]).

Transferring files

The easiest method for file transfer involves using the Connectivity Pack. However, the Datacomm application gives you other methods for file transfer using XMODEM, YMODEM, ZMODEM, or Kermit protocols.

Start and end the communication session as described earlier in this chapter.

Use the File Protocol command ([MENU] [F] [P]) to select the file transfer protocol you want for send and receive operations.

Use File Send, File Receive, and File Kermit-Get commands to send, receive, and get files.

To put the palmtop in Kermit Server mode use the Connect Kermit-Commands command, select Put HP100LX in server mode, and press F10 . Putting the palmtop in Server mode is appropriate if you have previously initiated a Kermit send operation from the host.

When you complete a Kermit transfer and the host has been put in Server mode, press MENU C K and select Finish with Remote Server. When you complete a Kermit transfer and the palmtop has been put in Server mode, press CTRL BREAK .

When X-, Y-, and ZMODEM transfer protocols are selected, Datacomm will automatically select 8 bits, no parity, and turn software flow control off. These settings may cause problems on some communication networks. Previous values for these configuration settings are restored when the transfer is completed. Also, 57600 and 115,200 baud are not recommended for X-, Y-, and ZMODEM transfers.

XMODEM does not allow multiple-file transfers. YMODEM, ZMODEM, and Kermit do allow transferring more than one file at a time using wildcards.

To send multiple files, enter wildcards when you use File Send, and then press ALT + S to enable Send All.

You can change the default download directory for receiving files using MENU C S F4 F6 .

Do not transfer multiple files using the Kermit protocol unless you move them to the default directory, C:_DAT. If you move multiple files to another directory, the first file moved will be placed in that other directory, and the remaining files will be transferred to the default directory, C:_DAT.

Character translation between code pages

If a remote system sending you information doesn't use the code page that your palmtop application uses, you may need to

translate some of the characters you receive. For instance, if the sending system transmitted character 150 on code page 860 (Ú) to your palmtop that was using code page 850, you probably would want to translate it into character 233 on code page 850 (Ú). A Character Translation Facility (CTF) file enables you to translate characters into meaningful characters the palmtop can display and print. The CTF is for displaying characters on the screen or for capturing characters from the screen into a file.

Note

CTF files do not translate characters when you use XMODEM, YMODEM, ZMODEM, or Kermit protocols or when you receive files as ASCII text.

To enable character translation:

Create a CTF file and specify it in your configuration settings.

To create a CTF file:

Identify the characters causing the problem and determine their decimal or hexadecimal character numbers on both the palmtop and the remote system. Appendix C contains the palmtop character sets. Since the character sets on both the palmtop and remote system may not be the same, the receiving system may have to choose a character that is a close but not exact match.

Use the Memo Editor to create an ASCII file similar to the sample shown below. Use the formatting rules and the table of CTF commands on the next pages for reference. Save the file with a .CTF extension in the C:_DAT directory.

Sample CTF file

```
# This is a partial code page 850 to 860 translation.#
Values
# from codes 128 to 143 that need translation will be
# performedodes received will display exact character
# matches
RADIX 10
```

```
RCONV 132 198
RCONV 134 181
RCCONV 137 210
RCONV 139 214
RCONV 140 226
RCCONV 142 199
RCONV 143 182
# Codes transmitted are nearest equivalent characters
TCONV 132 160
TCONV 134 131
TCCONV 137 136
TCONV 139 161
TCONV 140 161
# End of example Character Translation File
```

Formatting Rules Used in the Above Sample File

You must start the file with the RADIX command.

Each command must be on a line by itself. Blank lines are ignored, so you can add them between commands to enhance readability.

At least one space is necessary between the command and each input. Multiple blank spaces are ignored, so they can be used for additional readability.

Lines with just numbers assume the previous command.

Lines starting with # are ignored and treated as comment lines.

The complete set of CTF commands is found on the next page.

To make a CTF file part of the current configuration:

Before the settings in a CTF file become active, the file must be made part of the current configuration.

In Datacomm, press MENU C S *(Connect Settings), then* F4 F8 *(Advance, Remap).*

Specify your .CTF file. If necessary, tab to the Directories *list box and arrow to the correct directory, then tab to the* Files *list box and arrow to the .CTF file you want.*

Press $\boxed{\text{F10}}$ $\boxed{\text{F10}}$ $\boxed{\text{F10}}$ *to return to Datacomm's opening display.*

Descriptions of CTF File Commands

Command Description

Command	Description
#	Indicates a comment line, which is ignored in the file.
RADIX	Indicates whether the numbers used as input for the rest of the commands are interpreted as decimal codes or hexadecimal codes. You must use either RADIX 10 (decimal) or RADIX 16 (hexadecimal). The examples in this table assume RADIX 10.
RCONV	Specifies that a character received by the palmtop is to be converted to another character. It takes two inputs: the first number is the character code that should be translated, and the second is the code to be substituted. For example, using code page 850, RCONV 36 156 causes character code 36 ($) to be translated to 156 (£) when it's received.
TCONV	Specifies that a palmtop character is to be translated before it is transferred. It takes two inputs: the first number is the character code to be translated, and the second is the code to be substituted. For example, TCONV 124 132 causes the palmtop "|" character (code 124 in code page 850) to be translated so that the receiving system gets code 132.
RTCONV	Combines related RCONV and TCONV commands by specifying both the receive and transmit conversions in a single command. It takes three inputs: the first number is the character code to translate when it's received by the palmtop; the second is the code to substitute for that character; and the third is the palmtop character to translate into the first number for transmission. For example, RCONV 131 140 and TCONV 140 131 can be combined into RTCONV 131 140 140. This command causes character code 131 to be translated into code 140 whenever it's received by your palmtop; and whenever the palmtop code 140 is to be transmitted, it is first converted back to code 131 for the remote system.

Descriptions of CTF File Commands

Command Description

Command	Description
MTCONV	Specifies that a keystroke is to be translated into multiple characters. It takes from 2 to 11 inputs, one key code to be translated and up to 10 codes of the characters into which the first key code is to be translated. Such a translation is used in special circumstances, such as mapping a single keystroke in the "erase field" sequence expected by an IBM protocol. Each of as many as 20 palmtop keystrokes may be translated into as many as 10 characters.

Example: Using MTCONV to Send Escape Sequences for IBM PROFS. The IBM PROFS electronic mail system can interpret

escape codes from the palmtop to carry out functions not on the palmtop keyboard. For instance, a PROFS system might define the meaning of "ESC O p" as "Clear screen" and the meaning of "ESC =" as "PF12".

The MTCONV command converts a specified palmtop character code to a specified escape sequence. This three-line example remaps the à on the palmtop (code 133 on code page 850) to ESC O p, which is codes 027 079 112. It also remaps the ß (code 225) to ESC (codes 027 242).

Command	Description
RADIX 10	Interprets codes as decimal.
MTCONV 133 027 079 112	Maps à (FN a) to mean "Clear screen."
MTCONV 225 027 242	Maps ß (FN s) to mean the key "PF12."

27
Using a modem with your palmtop PC

Equipment you need

Your palmtop.
A modem, either serial or card.
For a serial modem only:
* The HP F1015A cable (see the figure below) . This cable is available separately or as part of the Connectivity Pack.

A serial modem adapter. This is available in the HP F1023 Connector/Adapter Kit and in the Connectivity Pack . The 25-pin modem adapter is *gray* and has a telephone symbol. The printer adapter is white and the 9-pin adapter is black.
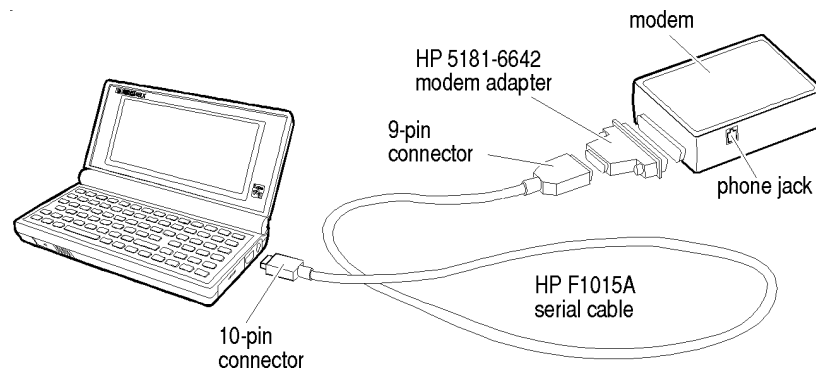
For information on the hardware needed for a modem connection, see chapter 26. For the pin assignments for the palmtop serial port and the pin numbers for the 10-pin connector on the serial cable, see chapter 26.

Connecting to a serial modem

Refer to your modem instructions to make the communications settings (baud rate, etc) on your modem agree with the settings in your palmtop communication application.

Connect the modem adapter to your modem.

Connect a phone line to your modem.

Connect power to your modem.

Connect the 9-pin end of the HP 1015A cable to the modem adapter.

Connect the 10-pin end of the HP 1015A cable to the serial connector on your palmtop. Make sure the HP logo faces up when you insert it.

Test your connection by typing at [ENTER]. *The response should be* OK.

Connecting to a card modem

Caution

Attempts to use an incompatible modem card may result in data loss. Before attempting to use a specific modem card,

In the U.S.: *Call (800) 443-1254 for a current list of compatible modems.*

In other countries: *Check with your HP dealer to ensure that a specific modem is compatible*

An important difference between a serial modem and a card modem used with the palmtop is the way the ports to which they connect receive their port definitions. A serial modem plugs into a port that is hard-wired as Com1. A card modem plugs into a port that normally serves as drive A. For this plug-in slot to serve as Com2, a special TSR (Terminate and Stay Resident) program, CIC100, configures the slot and the just-inserted card modem as Com2.

The CIC100 program is built in your palmtop, and it is installed by default as a TSR program.

Using a card modem in the plug-in slot

When you insert a modem card into the plug-in slot, CIC100 will sense that a modem card has been inserted and will configure both card and slot as Com2. When the card modem is removed, CIC100 will sense that change also, and will redefine the slot for memory cards.
Be aware that if you're running your communication program from the DOS prompt, you'll need to reconfigure the card modem by restarting the communication program *whenever power turns off and then returns during a communication session.*

About batteries and card modems

Card modems often have relatively high power requirements—even when they're plugged in but *not* in use—so using one when your palmtop is being powered by the batteries would likely drain the batteries very quickly.
Try to use your AC adapter to power your palmtop whenever a
    card modem is plugged into your palmtop.
Remove a modem card when not in use.

28
Using a printer with your palmtop PC

Your palmtop has a built-in serial connector that enables you to connect and use a serial printer.

Equipment you need

Your palmtop and a serial printer.
The HP F1015A serial cable for IBM and IBM-compatible
    computers. This cable is alsoavailable as part of the
    HP F1021 Connectivity Pack
printer adapter. Available in the HP F1021 Connectivity Pack and in the HP F1023 Connector/Adapter Kit—the printer adapter is the *white* adapter in the set. A serial-printer adapter may also come with your serial printer.

HP 5181-6640 printer adapter

9-pin connector

10-pin connector

HP F1015A serial cable
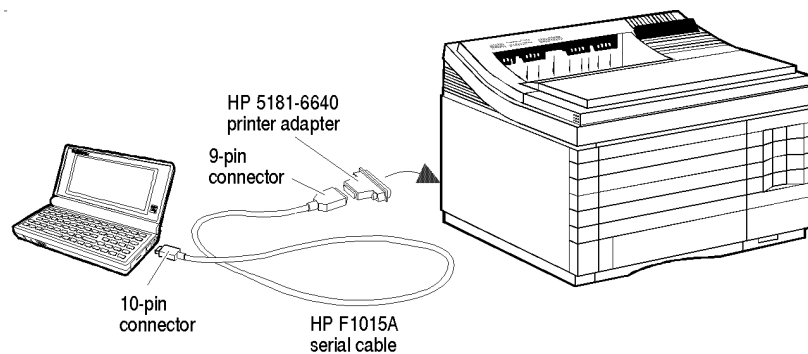
Preparing to print

Set up your serial printer to be compatible with the Epson FX-80, HP LaserJet, or IBM Proprinter. You also may need to set switches on the printer to select 8-bit data length, 1 stop bit, no parity, and XON/XOFF software handshaking—see the printer manual for information.

On the palmtop press &... S MENU O P.
Select Baud Rate, Interface and your choice of printer.
Press F10.
Connect the serial cable to the palmtop's serial port. Make sure the HP logo faces up when you insert the 10-pin end.
Attach the HP 5181-6640 white printer adapter to the 9-pin connector of the cable and connect the adapter's other side to your printer.

After you set the configuration in step 3 above, you can optionally save that configuration in a file by pressing F8 (Save As). Use F7 (Open) to open a previously saved configuration file.

Printing

Once your printer and palmtop are properly configured and connected, you're ready to print.

For Lotus 1-2-3, you print files from your palmtop just like you would print 1-2-3 files from your desktop PC.

For the other built-in applications, you use the File Print command (press MENU F P). The printing interface varies a little between applications, but is usually self-explanatory. If you need help after pressing MENU F P , press F1 (Help) to see a description of the print options and procedures.

Printing from PIM applications

You can print PIM items (from Appointment Book, Phone Book, Database, World Time, and Note Taker) one at a time or in groups. There are two **styles** of print-out:

List Style: a simple list of entries.

Custom Style: all the fields (or the ones you choose) of each record. You can customize this using Smart Clip.

```
-------------------------- ------------------- --------------------------
         +               Work Phone List          +
                            01/15/94
--------------------------------------------------------------------------
Name                     Business             Home

Blascow, Stan            (812) 555-0987       (812) 555-6543
Evett, Eric              700-1111             701-0000
Gilbert, Jean            800-1234             800-4321
Grouch, Oscar            (800) 123-4567       (800) 123-1234
Gryc, Andy               (416) 700-7634       (416) 555-7634
Harding, John W.         700-0811             710-0000
Johnson, Bill            700-2127             700-1272
Kaser, Everett           (206) 555-5676       (206) 555-0123
Megowan, Pat             (212) 555-8761       (212) 555-8866
Roy, Diana               555-0987             (311) 555-6543
Wechsler, Susan          800-5457             800-0000
Winter, Lynn             900-5538             900-0001
```

Phone Book Printed in List Style, All Items

To print items in a list (List Style):

The procedure varies for Appointment Book items.

*Display the appropriate application and, if necessary, the appropriate file and
   subset. You can print from the currently displayed subset or list only.*

*Display the list of items (records) that you want to print or print from. Select
   the desired items (highlight,* SPACEBAR*), unless you want to print all of the
   items in the current application.*

Press MENU F P *(File Print).*

*In the Print box, select Selected Items to print one or more records or All Items
   to print all records in the current list.*

In the Style box, select List.

In the Print to box, select Printer.

Press F10*.*

Description: Meet with visiting editors
Start Date : 1/17/1994
Start Time : 11:00am
End Time   : 12:00pm   +
Location   :
[X] Alarm
Leadtime: 5
#Consecutive Days: 1
Repeat Status: None
[X] Shows in Week View
[X] Shows in Month View
Note:
Include lunch

Description: Help with computer lab
Start Date : 1/17/1994
Start Time : 2:30pm
End Time   : 3:00pm
Location   : Jefferson School
[X] Alarm
Leadtime: 20
#Consecutive Days: 1
Repeat Status: Weekly
[X] Shows in Week View
[X] Shows in Month View
Note:

Description: School play
Start Date : 1/17/1994
Start Time : 6:30pm
End Time   : 7:30pm
Location   : Highland View
[ ] Alarm
Leadtime:
#Consecutive Days: 1
Repeat Status: None
[X] Shows in Week View
[X] Shows in Month View
Note:
Help usher

Appointment Records Printed in Custom Style, All Fields

Symbols for Printed To-Do Lists

Printed Symbol	Equivalent	Meaning Symbol
⌗	✔	Completed item (checked off).
!	!	Item due today (and not yet checked off).
›	☀	Item new today (its first occurrence).
‹	☹	Item past-due (and not yet checked off).
+	🗒	Item includes Note.

☹☀🗒To print records (details) of items (Custom Style):

Prepare to print as in the previous two procedures for items or appointments. Only the Style box will be different.

In the Style box, select (arrow to) Custom.

To print each record on its own page, tab to and check "1 item per page".

Tab to the list box to select the fields to print for each record. The choices are from the current Smart Clip list. Press ▼ *to scroll through the list. To print a complete record, select All Fields.*

When done, press F10.

To add Custom field choices:

The Custom list box has one or more built-in field choices, such as All Fields and Business Phone in the Phone Book application. These are actually Smart Clip definitions. You can add more Custom field choices for printing by creating new Smart Clip definitions for a particular application. Refer to *Smart Clip: copying multiple data fields from multiple records*, see chapter 1.

Printing to a file (creating an ASCII data file)

Printing to a file (MENU File Print) creates an ASCII version of the palmtop PIM information and saves it in a file. This does not apply to the Memo Editor. The ASCII file can then be interpreted by other editing software besides the original application. You can insert this ASCII file into any other file, or transfer it to another computer for printing or editing.

Setting up printing information (setup)

Use MENU File Print **Setup** (MENU F P F3) to specify:

How much printing should appear on a page: Page Length, Top
    Margin, Bottom Margin.
Starting and/or ending the print-out with special information in
initialization and/or termination strings of up to 128 characters
each. The exact codes and meanings of these printer-control
sequences depend on the printer.

29
cc:Mail

About cc:Mail

cc:Mail is an electronic mail (e-mail) program that enables you to send and receive messages on an HP 200LX. The design of cc:Mail is based on a common metaphor—paper mail. Your "mail" can be text, graphics, files, or even facsimiles, and you can send it through your local "post office" to any cc:Mail user in the world.

What you need to make it work

An HP 200LX.
A modem for your HP 200LX.
A home post office maintained by your department or company. Your Post Office is managed by your **Post Office Administrator**, who is your local cc:Mail expert. To set up a cc:Mail Post Office, contact cc:Mail, below.
For information and technical support on the Post Office, contact:

cc:Mail, A Division of Lotus
2141 Landings Drive
Mountain View, CA 94043
Phone: 800-448-2500
FAX: 415/960-0840

For information and technical support on the cc:Mail software in the HP 200LX, contact Hewlett-Packard (see the inside back cover).

Starting cc:Mail the first time

Before you use cc:Mail, you must fill out the Connect Settings dialog box. Press [&...] [I] to start cc:Mail, and then press [MENU] [C] [S].

```
cc:Mail Remote                    Inbox              03/03/95  8:44 aM
                                  cc:Mail
       Host: cc:Mail           Modem File: D:\_DAT\HAYES.
     Prefix: CCMAIL          Modem Volume: Medium▼
Post Office: Silver-HQ       Phone Number: 555-1212
  User Name: ?                  Dial Mode: Tone ▼
   Password: ?               Dial Timeout: 60  Seconds
       Baud: 2400 ▼          Idle Timeout: 5   Minutes
  Interface: COM1       ▼     Manual Dial: No ▼
Flow Control: Hardware▼      Max Msg Size: 0       Bytes

   (Add Host)      (Delete)    (Update)      (Cancel)

    Help                        Add   Delete  Update  Cancel
```

Connect Settings Dialog Box

Use [TAB] to move among the fields and type in the text boxes and use [▼] in the scroll boxes. If you need help filling in the fields, press [F1] for help or see your Post Office Administrator. With the correct Connect Settings, you have two types of connections to your Post Office:

Batch Transfer, which is an intermittent connection to your Post Office that you control. All cc:Mail Post Offices allow this type of connection. Whenever you connect in this way, you automatically receive any messages waiting for you at your Post Office and send any messages you've written. As soon as the two-way transfer is complete, the connection is cut.

Interactive Connection, which is a continuous connection to your Post Office that you can make if your Post Office meets certain conditions—ask your Post Office Administrator.

Most procedures in this chapter describe batch transfers. Interactive Connections are covered at the end of the chapter.

Receiving and reading messages

If you have messages waiting for you at the Post Office, connect a modem to your HP 200LX and you're ready to receive and read your messages.

To receive and read a message:

In cc:Mail, press [F10] *to display the Connect dialog box. The Connect to Host scroll box shows* cc:Mail, *unless you've changed the default host name.*

```
                        Connect
Connect to Host:
cc:Mail                          ↓
┌Connection Type────────────────────┐
│ ◉ Copy unread mail and disconnect │
│ ○ Interactive connection to Post Office │
└───────────────────────────────────┘
  [Connect]    [Edit Settings]    [Cancel]
```

Connect Dialog Box

If it's not selected, tab to the Connection Type field and select Copy unread mail and disconnect *for a batch transfer.*

Press [ENTER]. *At this point you automatically connect to the specified Post Office, send messages ready to be sent, receive messages waiting to be read, and then disconnect from the Post Office.*

Press any key to display a summary of the messages received. An asterisk (*) tells you a message has not been read.

Highlight a message to read and press [ENTER].

When you're finished, press [F8] *or* [F9] *to read the previous or next message, or press* [ESC] *to return to the In Box.*

Replying to messages

To reply to a message:

Display the message you want to reply to (highlight it, press [ENTER]).

Press [F6] *(Reply).*

Fill out the Reply dialog box by checking/unchecking desired boxes. Press [F1] *if you need help.*

Press [F10].

Tab to the message field and type your reply.

Press [F5].

Fill out the Send Message dialog box and press ENTER*.*
Press F10 *and Connect to the host for a batch transfer (select* Copy unread mail and disconnect*).*

You forward a message in a similar way. Use F7 (Forward) when the message is displayed.

Creating and sending messages

To create and send a message:

From cc:Mail, press F4 *to display the Create Message form.*
Address the message by typing the person's cc:Mail name. You can type more than one name by separating names by a comma. Additional addressing options are described later in this chapter.
Tab to the cc: and bcc: fields, if you want, and enter names in these fields.
Tab to Subject: *and type an optional subject.*
Tab to the first line of the message field and type your message. cc:Mail uses the same text editor as the Note Taker (see chapter 8).
Press F5 *to display the Send Message dialog box.*
Press ENTER *to accept both Save and Mail. A copy of your message will be saved in the Saved Message Folder and the original will be sent to your Outbox, waiting to be sent to your Post Office during a Batch Transfer.*
Press F10 *to display the Connect dialog box. The Connection Type option box should have* Copy unread mail and disconnect *(Batch Transfer) selected.*
Press ENTER *to start sending your message. The Connection Summary box gives you progress reports.*
When prompted, press any key to return to your Inbox.

About folders

There are three different HP 200LX folders provided by cc:Mail: in which you can store messages.

Inbox: This folder holds messages you've received from other cc:Mail users. Once you've read a message, you can leave it in the Inbox, move it to another folder, or delete it.

Outbox: When you send a message, it's temporarily held in the Outbox folder until it's transmitted to your Post Office. Once the message is transmitted, you no longer have a copy unless you specified that a copy be saved in the Saved Message

folder.

Saved Message: This folder holds messages that you have chosen to save during the send message procedure.

You can also create additional folders for your own use.

To move a message to another folder:

Display the folder containing the message you want to move.

   For the Inbox folder, press `MENU` `V` `I` (View Inbox).

   For another folder, press `MENU` `V` `F` (View Folders).

     Highlight the folder name and press `ENTER`.

Highlight the message to move and press `F3` *(Move).*

Highlight the name of the destination folder or tab to the New Folder field and type in a new folder name.

Press `F10`*. Then press* `MENU` `V` `F` *(View Folders) to see the name of your new folder in the folder list.*

About address books and mailing lists

Types of Address Books or Lists
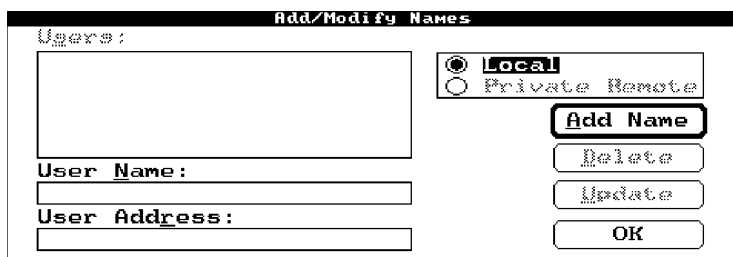
You have three address books and one directory available for use when you address messages. The **Remote Directory**, maintained by your Administrator, lists all those names you can address directly from your Post Office.

In the following table, **Local** means it can be used without an Interactive Connection, and **Remote** means it can be used during an Interactive Connection.

Available Address Books

Type of Address Book	When Local	Used Remote	Where Located	Who Maintains
Local	X	X	HP 200LX	You
Directory		X	Post Office	Administrator
Private		X	Post Office	You
Public		X	Post Office	Administrator

To add individual names to your Local Address Book:

Press MENU M M *(Mail Add/Modify-Names).*

Add/Modify Names Dialog Box

Press ALT + N *and type last name, first name.*
If a mail address other than the name is needed, tab to User Address *and type the address. Your Post Office Administrator can help you compose a correct address.*
Press ENTER *to copy the name to the Users list box.*
You can enter another name and press ENTER *.*
Press F10 *when done adding names.*

To capture a name from a piece of mail and add it to your Local Address Book:

Highlight a message to read and press ENTER *.*
Press F2 *(Capture).*
Press F6 *(Add) to add the sender to your Local Address Book.*

If the name contains the word "at", the part before the "at" will be stored in the Name field and the entire address will be stored in the Address field in your Local Address Book.

To delete an individual's name from your Local Address Book:

Press MENU M M *.*
Arrow to the name you want to delete in the Users list box.
Press F7 ENTER *to delete the name. If this name was also included in a mailing list, the mailing list will still contain the name.*

To Automatically Update Your Local Address Book:

The cc:Mail Automatic Directory Exchange (ADE) utility
enables you to update your Local Address Book using update
files sent from your Post Office Administrator.

If you can, plug in your AC adaptor.
Quit cc:Mail (MENU Q).
Press &...   : to start the ADE utility.
Follow the displayed instructions to either process all ADE update files in your
Inbox or process a selected ADE file.

The time it takes to process an update file is directly related to
the size of the update. Large updates could take several minutes
to process; very large updates could conceivably take more than
an hour. When you see the process-complete message, you can
open cc:Mail and use your updated Local Address Book.

What is a User Address and a User Name?

When you first chose your User Name with the help of your
Post Office Administrator, what you actually chose was your
cc:Mail address. This is the name your Post Office recognizes.
When you complete the Add/Modify Names dialog box, you
can leave the Address box blank as long as you enter User
Names known by your Post Office.
When you enter a name in the User Name text box that is not
known to your Post Office, you must then enter the person's
official cc:Mail name in the User Address box in the Add/
Modify Names dialog box. When you send your message to
your Post Office, the Post Office fails to recognize the User
Name, so it looks at the User Address. Since it recognizes that
name, it accepts your message. If you use this method to make
the User Name an "alias" for a longer address, addressing
messages could be simplified.
Another use of the User Address text box is to enter a name
that includes a cc:Mail Post Office name, for a person
registered at another Post Office. Say that person's name is
Betsey Harrington and her home Post Office name is LBCC.
You would type in the User Address text box Betsey
Harrington at LBCC. When your Post Office received a
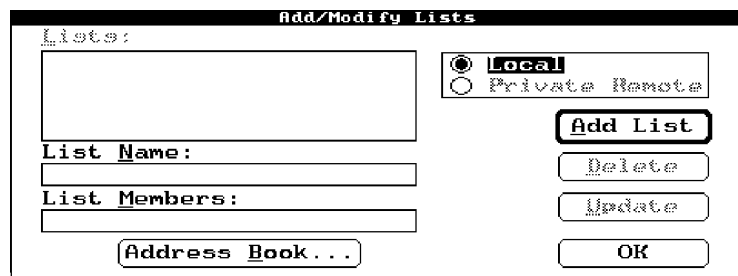
message addressed to her, it would not recognize Betsey Harrington, but it would recognize another cc:Mail Post Office name. So it would send the message to the LBCC Post Office. That Post Office would recognize Betsey Harrington as one of its own, and would accept the message.

To create mailing lists:

Press MENU M L *(Mail Add/Modify-Lists).*

Add/Modify Lists Dialog Box

Select either "Local" (for your Local Address Book used for Batch Transfers) or "Private Remote" (for your Remote Address Book used during an Interactive Connection).

Tab to the List Name box and type a name as you would like it to appear in the list.

Tab to the List Members box and do one of the following:
Add new names to the list:

Type first names first.

Separate different members with commas.

Press F6 (Add).

Press F10 (OK) when done adding mailing lists.

  Copy names from your address list:

Press F5 (Address).

Highlight a name you want (a person or a mailing list) and press F8 (Select).

Repeat for all names you want, then press F10 (OK).

Press F6 (Add).

  Press F10 *(OK) when done adding mailing lists.*

To delete a name from a mailing list:

Use ⌈DEL⌉ carefully to delete only the characters of the name.
Use ⌈F8⌉ (Update) to change an existing list.

To delete an entire mailing list:

In cc:Mail, press ⌈MENU⌉ ⌈M⌉ ⌈L⌉*.*
Arrow to the name of the mailing list you want to delete.
Press ⌈F7⌉*.*
Read the warning message, then either press ⌈F9⌉ *to cancel the delete operation
   or press* ⌈ENTER⌉ *to delete the entire mailing list.*
Press ⌈F10⌉*.*

To find a name in a list (speed-locate):

In a mailing list, just start typing a name. As each subsequent
letter is typed, the highlight moves to the first matching name.

Addressing options

When you address your message, you have two options:
Address originals, copies (cc:), and blind copies (bcc:) of your
message.
Address your message to names of users and to mailing lists
(distribution lists). When you address a message to a mailing
list, the names of the individual users in that list are
automatically added to your message address.

To address your message:

In cc:Mail:, press ⌈MENU⌉ ⌈M⌉ ⌈C⌉ *or press* ⌈F4⌉ *(Create).*
In the To:, cc:, or bcc: box, do one of the following:
   Type the cc:Mail name of a person or mailing list understood
      by your Post Office (a name that exists in the Post Office's
      Directory or in one of the three Address Books—Local,
      Private, or Public). Separate multiple names with commas.
   Select an address as follows:
Press ⌈F2⌉.

Press ALT + LETTER , where "letter" is "L", "D", "P", or "U", to select the list or directory you want.
Press ALT + N .
Highlight (use the arrow keys or just start typing) the name of the person or mailing list you want, and then press ENTER . Repeat to add additional names.
Press F10 .
When finished addressing, you're ready to create the body of your message.

Managing your messages

To save a message you've just completed:

After completing your message, press F5 .
Check the Save box and press ENTER . If you check both the Save and Send boxes the message will be sent and saved.

The message will be saved in your saved-messages folder. To view saved messages, press F7 (Folders) from your Inbox.

To save a message in an MS-DOS file:

In either your Inbox or another folder, highlight the message you want to save.
Press MENU F A .
Select a path and file where your message will be saved. This can replace an existing file or create a new file.
Press ENTER .

Attachments are not saved; only the text of the message is saved in a text file format.

To copy an attached DOS file from a received message:

To copy an attached DOS file, the message to which the file is attached must be in a local folder (like your local Inbox).
Display the local message that contains an attached MS-DOS file. If the message is in your Remote Inbox (Interactive Connection), move it to your Local Inbox, then display it.
Press F3 .

If the Attachments list box shows more than one attachment, arrow to
  highlight the one you want to detach.
Press ENTER *or* F4 *(Detach).*
Specify a path and file name for the copy of the attached file.
Press F10*.*

To move or copy a message:

Note

When NOT using an Interactive Connection:

You cannot move or copy a message to the Inbox.

You cannot copy a message from the Inbox, you can only move it.

Note

When USING an Interactive Connection:

You cannot move or copy a message to the Inbox.

You can copy a message from the Inbox, but only to a folder within the HP 200LX.

Display a folder containing the message you want to copy or move.
Highlight the message you want to copy or move.
Press either F2 *(Copy) or* F3 *(Move).*
Do one of the following:
  Highlight the folder to receive your message.
  Tab to New Folder and type a name for your new folder.
Press F10*.*
Press ESC *to display the list of folders.*

To delete a message:

You can delete a message from any folder.
Display the folder containing the message you want to delete.
Highlight the message you want to delete. Press SPACEBAR *to select it and*
  highlight another if you want to delete more than one.
Press DEL*.*

Printing in cc:Mail

See chapter 28 for information on connecting a printer.

To print a list of all the messages in a folder:

Display the folder with the message list you want to print.
Press [MENU] [F] [P].
Highlight Print list of messages in this folder.
Press [F10].

To print the text of selected messages in a folder:

Display the folder containing the messages you want to print.
Highlight the message you want to print. Press [SPACEBAR] *and highlight*
    another if you want to print several messages at once.
Press [MENU] [F] [P].
Highlight Print text of selected messages.
Press [F10].

Importing and attaching files to a message

You can **import** an MS-DOS text file to be a part of your message, or you can **attach** to your message one or more MS-DOS files of any type.

To insert (import) text files to your message:

Place the cursor at the point in your message text where you want the imported text file inserted.
Press [F4] *(Import) and select the file to be imported.*
Press [F10] *(OK).*

To attach MS-DOS files to your message:

You cannot attach a file to a message during an interactive connection.
When you have finished writing the text of your message, press [F3] *(Attach).*
    This shows a list of any previous attachments.
Press [F3] *(Attach) to attach a new file to the message.*
Select a file name and press [F10] *(OK).*
To attach another file, repeat step 2.
When you're finished attaching files, press [F10] *(OK).*

To detach an MS-DOS file from a message before sending:

If you attach a DOS file to a message, then decide you do not want to send that file with the message, follow this procedure to detach it.

Open the message.
Press F3 *(Attach).*
Highlight the name of the file you want to detach.
Press F4 *(Detach)* F10 *(Yes).*
Press F10 *(OK) when done.*

Changing your communication settings

To change the directory that contains your mail messages:

You can change the default directory that contains your folder messages from C:_DAT\MAIL to another directory. If you change that directory, you cannot access the messages stored in C:_DAT\MAIL from the cc:Mail application. But you could access those messages by changing the directory back to C:_DAT\MAIL.

Press MENU F L.
Press ENTER *to confirm you decision.*
Type the path and directory where your new mail messages will be located.
Press F10.

To change your password:

Press MENU C P.
If the host you're using is not selected in the Select Host list box, arrow to the host you're using.
Tab to the Enter Old Password text box and type your old password. The characters will display as gray blocks.
Tab to the Reenter Old Password box and again type your old password.
Press F10. *You'll be told that your old password was accepted.*
Press F10 *again to display another Change Password dialog box.*
Type your new password, press TAB, *then reenter you new password.*
Press F10 *to see* New password accepted.
Press F10.

Understanding cc:Mail's host

The group of settings identified by the host name in your Connect Settings dialog box initializes cc:Mail for your use. The default Host name is "cc:Mail." If you have several groups of settings, each group is identified by a different host name. You might want several different hosts if you use cc:Mail in different locations, requiring different Post Offices, passwords, phone numbers, etc.
Each host name and the settings each name represents are saved in the ASCII file C:_DAT\CCMAIL.INI. You can view the contents of that file from theFiler (highlight the file name, then press ⌊F8⌋).

Understanding cc:Mail's prefix

The name of your local Outbox is given by cc:Mail's Prefix. Your current Prefix is displayed when you press ⌊MENU⌋ ⌊C⌋ ⌊S⌋ and, if necessary, select the host name you want. Your default Prefix (the name of your default Outbox) is "CCMAIL".
Your Outbox contains the messages to be transmitted to your local Post Office during a Batch Transfer. If you worked for some weeks in a location served by Post Office A and at other times worked in Post Office B's area, you would want two different Outboxes (two different Prefixes); call them A and B. When not using an Interactive Connection, you would want to send your messages to Outbox (Prefix) A when in Post Office's A area, and to Outbox B when in Post Office B's area. To avoid updating your Connect Settings each time you moved between A and B, you could define two different Hosts, one containing Prefix A, the other Prefix B. Before creating messages, you would specify Host A or B depending on your location (A or B). Then when the connection was made, messages in the specified outbox would be sent.

To modify your Host (your current set of Connect Settings):

Press MENU C S.
Arrow to the name of the Host whose setting you want to change.
Press F10.
Change the settings as desired. NOTE: *When entering a new file name for your Modem File, type the entire path and name, like* D:_DAT\HAYES.MDM.
To save your new settings under the present Host name, *press* ENTER.

To create a new Host (a new set of Connect Settings):

Press MENU C S.
If possible, arrow to the name of the Host whose settings are closest to those of your new Host and press F10.
Type the new Host name in the Host text box.
Change any settings as desired. NOTE: *When entering a new file name for your Modem File, type the entire path and name, like* D:_DAT\HAYES.MDM.
To save your new settings under your new Host name, *press* F6 *(Add).*

To delete a host:

Press MENU C S.
Arrow to the name of the Host you want to delete.
Press F10
Press F7.
Press ENTER.

Creating another modem file

If your modem does not work satisfactorily using the supplied modem file (D:_DAT\HAYES.MDM), you can create a new modem file.

To create a new modem file:

This procedure shows you how to modify the supplied modem file and to specify that modified file in your Create Settings dialog box. Use your modem manual as a source of information. See also chapter 27, *Using a modem with the HP 200LX.*
In the Memo Editor (press ▤ *), press* MENU F O.

Type d:_dat\hayes.mdm *and press* [F10] *to display the contents of the default modem file.*

Change the text following the first line MODELS= **to the name of your modem.**

Continue editing this file as necessary to show the commands required by your modem.

Press [MENU] [F] [A]***.***

Type a file name as C:_DAT*filename*.MDM*, where filename is a name you supply.*

Press [F10] ***to save your new modem file.***

Enter the name of your new modem file into the Connect Settings dialog box.

Except for backslash (\) and circumflex (^), the modem commands youenter are sent to the modem without change. The two exceptions are described as follows:

Backslash: The\ character is used to specify an 8-bit value.The three characters immediately following\ must be characters between 0 and 7, and together they are treated as a 3-digit octal integer. For example,\015 is treated as octal 15, decimal 13, hex 0D, and is equivalent to the carriage return character.

There are two exceptions to the 4-character backslash sequence:

The actual backslash character is represented by\\.

The actual circumflex character is represented by|^.

Circumflex: The ^ character is used to specify commonly used values, such as ^M, which becomes the carriage return character.

Examples of \ and ^ in a Modem Command Line

Command	What's Sent	Comment
ATZ	ATZ	No special characters used.
AT\132	ATZ	132 is octal for Z.

AT\\Q3	AT\Q3	\\ is used for\.
AT\^B1	AT^B1	\^ is used for ^.
AT^M	AT	^M = carriage return.
AT\\N0\\Q3	AT\N0\Q3	\\ is used twice here.
AT\134N0\134Q3	AT\N0\Q3	\134 is used instead of\\.

Using an interactive connection to the post office

While connected interactively to your Post Office, you have direct access to your Post Office Inbox, the Public List of mailing lists, your Private List of mailing lists, and the Post Office's Directory of names (which contains the names of all users you can address directly).

Most cc:Mail procedures are the same whether you intend to connect to the Post Office via a batch transfer or an interactive connection. Here are some procedures specific to interactive connections.

To open an Interactive Connection:

With a modem connected to your HP 200LX and cc:Mail open, press [MENU] [C] [C] or [F10].

Press [TAB] *and arrow to* Interactive Connection to Post Office.

Press [ENTER] *to initiate the connection. It will take some seconds to complete the connection.*

Note

When an Interactive Connection is active, you can open and use other applications without breaking the cc:Mail connection, provided you do not attempt to make another connection from another application.

To close an Interactive Connection:

In cc:Mail, press [MENU] [C] [D] or press [F10].

Press [ENTER].

To read a new message when using an Interactive Connection:

If your Remote Inbox is not displayed after you open an Interactive Connection, press F6. Then, if necessary, press F7 (Inbox).

Arrow to the message you want to read and press ENTER. *It will take some seconds for the message to display, depending on the length of the message and the baud rate.*

To view selected messages during an Interactive Connection:

When you first use your HP 200LX during an Interactive Connection and view the contents of the Inbox or another folder using one of the MENU View choices, all the messages in that folder are displayed. This procedure allows you to restrict the messages you view in the Inbox to meet certain criteria.

In cc:Mail, press MENU C R, *then do one of the following:*

To restrict a message list to only unread messages, select Unread Messages.

To restrict a message list to only messages with a particular subject, arrow to Messages Re:, then press TAB and type the subject. The subject you type is case insensitive.

To restrict a message list to those from a particular person, arrow to Messages From:, then press TAB and type the person's name.

To restrict a message list to those written during a certain date range, arrow to Message Date:, press TAB and type the first date in the current format (see the upper-right corner of your display), then press TAB and type the last date in the range. To receive only messages sent on a single date, make both dates the same.

To cancel all message list restrictions, arrow to All Messages.

Press F10.

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Using Laplink Remote Access

LapLink® Remote Access provides a **redirector** connection between two computers. In a redirector connection, you access the disk drives on one computer (the **server**) through additional drive letters on another computer (the **client**). For example, drives E and F on your desktop PC (the client) could be mapped to drives A and C on your palmtop. This makes copying, merging, or otherwise manipulating files between your palmtop and another computer quick and easy.

What you need to make it work

To use LapLink Remote Access in the palmtop, most users will need the Connectivity Pack running on their PCs. The Connectivity Pack contains the software, cable, adapters, and instructions for making it work.
However, LapLink Remote Access in the palmtop also works with HP OmniBook computers, which have LapLink Remote built in, and with any PC running the CommWorks™ LapLink Remote Access product from Traveling Software, Inc. To connect with those products, users need to use an infrared connection or a serial connection (requiring the HP 1015A Serial Interface Cable). See the manuals that come with those products for instructions.

Running Laplink Remote Access on your palmtop

Press ⌊&...⌋ ⌊R⌋ to start LapLink Remote Access on your palmtop. Here is the status screen you'll see:

```
         LapLink Remote Access Server      03/12/94 10:04 am
  ┌Connection──────────────────────────────────────────────┐
  │ Connected to: [not connected]                           │
  │ Activity: Waiting for a Connection                      │
  │ Status: On                                              │
  └─────────────────────────────────────────────────────────┘
  ┌Settings────────────────────────────────────────────────┐
  │ Interface: Com1                Speed: Automatic         │
  │ Sound: On                  Local Name: HP 200LX         │
  │ Idle-connection timeout (minutes): 5                    │
  └─────────────────────────────────────────────────────────┘
    Help        Com1   IR         Sound      On/Off      Set
```
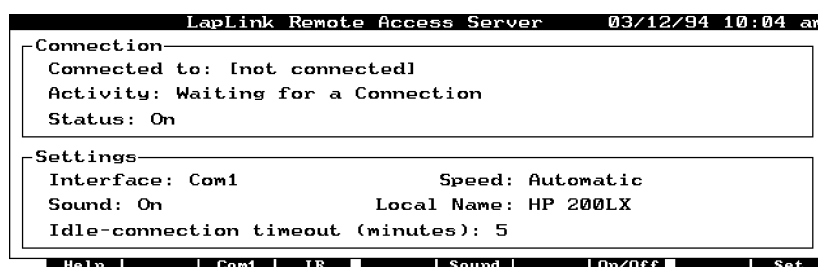
The default settings should work without modification for most PCs running the Connectivity Pack. See the Connectivity Pack user's guide for ⌊&...⌋ setup instructions.

If you need to change settings not found on the function keys, use ⌊F10⌋ (Set). Use ⌊F1⌋ (Help) if you need descriptions of any fields.

About server mode

When you start LapLink Remote Access by pressing ⌊&...⌋ ⌊R⌋, the palmtop can only be a *server*. This means that *all commands and file manipulations must be done from the other PC*. The Connectivity Pack contains much ⌊&...⌋ information on how to use LapLink Remote Access with your palmtop.

A
Warranty, support, and service

Limited one-year warranty

What is covered

Your HP palmtop PC (except for the batteries, or damage caused by the batteries) and accessories are warranted by Hewlett-Packard against defects in materials and workmanship for one year from the date of original purchase. If you sell your unit or give it as a gift, the warranty is automatically transferred to the new owner and remains in effect for the original one-year period. During the warranty period, we will repair or, at our option, replace at no charge a product that proves to be defective, provided you return the product, shipping prepaid, to a Hewlett-Packard service center. Replacement may be made with a new or reconditioned product, or with a newer model of equal or better functionality.

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state, province to province, or country to country.

What is not covered

Batteries, and damage caused by the batteries, are not covered by the Hewlett-Packard warranty. Check with the battery manufacturer about battery and battery leakage warranties.

This warranty does not apply if the product has been damaged by accident or misuse or as the result of service or modification by other than an authorized Hewlett-Packard service center.

No other express warranty is given. The repair or replacement of a product is your exclusive remedy. ANY OTHER IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE ONE-YEAR DURATION OF THIS WRITTEN WARRANTY. *Some states, provinces, or countries do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.* IN NO EVENT SHALL HEWLETT-PACKARD COMPANY BE LIABLE FOR CONSEQUENTIAL DAMAGES. *Some states, provinces, or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.*

Products are sold on the basis of specifications applicable at the time of manufacture. Hewlett-Packard shall have no obligation to modify or update products, once sold.

Consumer Transactions in Australia and the United Kingdom

The above disclaimers and limitations shall not apply to consumer transactions in Australia and the United Kingdom and shall not affect the statutory rights of consumers.

Customer support

In the United States
If you have questions that this User's Guide doesn't answer (see the contents and index first), you can contact Hewlett-Packard's Mobile Computing Customer Support department at the address or phone number on the inside back cover of this manual.

Outside the United States
Your authorized Hewlett-Packard dealer is committed to provide full after-sale support. Authorized dealers are able to provide local, personal, and uniquely-responsive support, and they are backed by the full resources of Hewlett-Packard.

If your palmtop requires service

Contact Hewlett-Packard for service information, shipping instructions, and out-of-warranty service charges before you send your unit in for repair.

In the United States

Call the Customer Support telephone number listed on the inside of the back cover. Do not ship the unit for service without first contacting a Hewlett-Packard office.

In Europe

Contact your Hewlett-Packard dealer or sales office for the location of the nearest service center. Do not ship the unit for service without first contacting a Hewlett-Packard office.

In other Countries

Contact your Hewlett-Packard dealer or sales office for the location of other service centers.

Repairs are warranted against defects in materials and workmanship for 90 days from the date of service.

HP marketing headquarters outside the U.S.

Should you need to contact Hewlett-Packard, check your local telephone directory for the HP Sales and Service Office near you. If you cannot locate an HP office, contact one of the Worldwide HP Marketing Headquarters listed here.

ASIA

Far East Sales Region Hdqtrs
Hewlett-Packard Asia Ltd.
22nd Floor West Tower,
Bond Centre GPO Box 863
Hong Kong

LATIN AMERICA

Hewlett-Packard Latin Am. Hdqtrs
Monte Pelvoux 111
Lomas de Chapultepec
11000 Mexico D.F.

EUROPE

European Operations Hdqtrs
Hewlett-Packard S.A.
150, route du Nant-d'Avril P.O. Box
CH-1217 Meyrin 2 Geneva
Switzerland

OTHER AREAS

Intercon Operations Hdqtrs
Hewlett-Packard Company
3495 Deer Creek Road P.O. Box 10495
Palo Alto, CA 94303-0896
USA

B
Batteries and environmental limits

When to Replace Batteries

When you see a low-battery message in the display, *replace the indicated batteries as soon as possible.* If the display beeps and turns off immediately after you turn it on, replace the main batteries.

The backup battery, which prevents data loss when the main batteries are dead or out of the unit, should be changed a year after it's installed even if a low backup-battery message doesn't appear.

Battery Types and Battery Life

Main battery type

Any brand of 1.5-volt, size AA Alkaline batteries or Nickel-Cadmium rechargeable batteries.

Backup battery type

3-volt CR2032 lithium coin cell. If fresh main batteries are maintained, the backup battery should last a year before you replace it.

The battery life you get with your palmtop depends on the type and quality of batteries you use.

How you use your palmtop. Things like IR and serial communications, modems, and flash-disk memory cards all require higher current and therefore drain your batteries faster.

Whether you use the AC adapter.

For typical use without the AC adapter, fresh Alkaline batteries

should last from 2 to 8 weeks. Rechargeable batteries used without the AC adapter will get less life than Alkalines—how much less depends on the quality of the Nickel-Cadmium rechargeable batteries you use.

The best way to extend battery life is to use the AC adapter whenever possible.

Removing and installing batteries

Caution

Do not remove the main batteries if the backup battery is dead—complete memory loss will result. Replace the backup battery first in this case.

Warning

Do not mutilate, puncture, or dispose of batteries in fire. The batteries can burst or explode, releasing hazardous chemicals. Replace batteries with only the types recommended in this manual. Discard used batteries according to the manufacturer's instructions. The back-up (lithium) battery can explode if it is inserted incorrectly.

Varning

Explosionsfara vid felaktigt batteribyte. Anvĺnd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera anvĺnt batteri enligt fabrikantens instruktion.

To change the main batteries:

Close all open applications before changing batteries.
Important: *Turn your palmtop off and close the case.*
Remove the battery cover and old batteries.
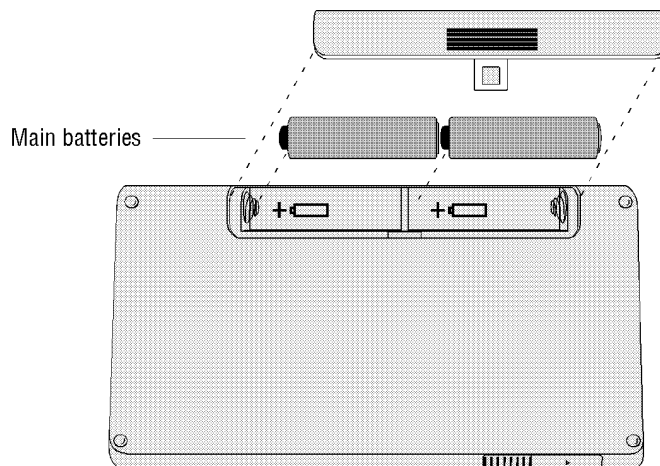
Main batteries

Install two fresh AA batteries, orienting them as shown by the symbols in the battery compartment.
Replace the cover and turn your palmtop on. If the palmtop won't turn on after you replace the batteries, go back over the procedure and check the orientation of the batteries as shown in step 3—you may have put the batteries in backwards.
If you replaced rechargeable batteries (either with Alkalines or another set of Nickel-Cadmium rechargeables) be sure to go into Setup and set or verify your battery type and charging setting. Battery charging is automatically disabled whenever you remove rechargeable batteries.

To change the backup battery:

Caution

Do not remove both the main batteries and the backup battery at the same time—complete memory loss will result.

Important: *Turn the palmtop off.*
Remove the backup-battery cover and pull out the battery tray.
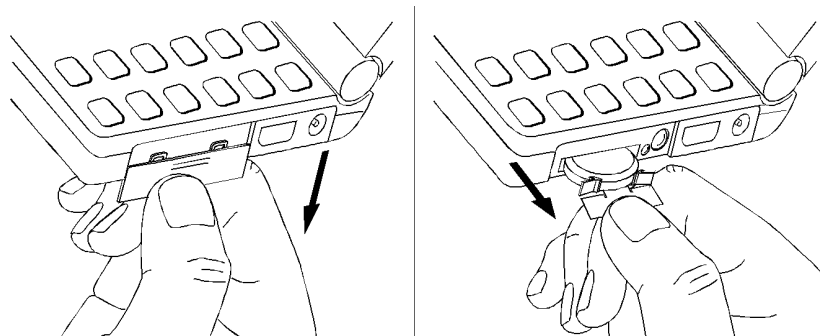
Remove the old battery from the tray and insert a fresh, 3-volt CR2032 coin cell. Be sure the „+" on the battery is facing down in the tray.
Insert the battery tray back into the palmtop and replace the cover.
Turn the palmtop on. If the battery-low message is still present in the display, go back over the procedure and check the battery orientation as shown in step 3—you may have put the battery in the tray upside down.

Rechargeable batteries

If you use the HP F1011A adapter, you can recharge rechargeable batteries while they're inside the palmtop.

Warning

The palmtop recharging system was designed to operate only with Nickel-Cadmium rechargeable batteries. Because of potential hazards, we recommend that you do not recharge other types of rechargeable batteries in the palmtop.

To charge rechargeable batteries inside the palmtop:

Connect the HP F1011A adapter to the palmtop and a power outlet.
Press [&...] [S] *to start the Setup utility.*
Press [MENU] [O] [B] *to select the Battery Type dialog box.*
Use [▼] *to select the Nickel-Cadmium battery type.*
Tab to the recharging field and press [SPACEBAR] *to select it.*

Caution

Charging should be enabled only for Nickel-Cadmium rechargeable batteries. If you select it when Alkaline batteries are installed, permanent damage to your palmtop could result.

Press [F10]*. Now the batteries will be charged whenever the adapter is plugged in.* **The palmtop display will stay on whenever it is recharging.**

If you take out your rechargeable batteries, battery charging is automatically disabled. *It's good practice to go into Setup and verify your battery type and charging setting whenever you change batteries.*
Most Nickel-Cadmium rechargeable batteries will recharge in about 8 to 12 hours. Here are the charging rates in the palmtop:

Continuous Charge Rates

Time	Rate of Charging
The first 6 hours	*100 mA*
After 6 hours	*45 mA*

AC adapter information

Because of special palmtop power requirements, you need to use theHP F1011A adapter. This adapter is a regulated AC to DC converter with these specifications:

DC Power Supply Output Specifications

Polarity: Negative (center contact on adapter is
                            ground, outer contact is positive)
Minimum voltage: +9.6 V
Nominal voltage: +12 V
Maximum voltage: +14.4 V
Minimum current: 750 mA

Using this adapter whenever possible significantly extends
battery life because the palmtop doesn't use battery power
while the adapter is plugged in.

Also, the adapter can be used to recharge Nickel-Cadmium
rechargeable batteries. See the previous section for information,
including the charge rate for the adapter.

Environmental limits for your palmtop and plug-in cards

To maintain product reliability, avoid getting the equipment wet
and observe the following temperature and humidity limits for
the palmtop and Hewlett-Packard plug-in cards:

Operating temperature: 0º to 50ºC (32º to 122ºF).

Storage temperature with data retention: 0º to 60ºC (32º to
    140ºF).

Operating and storage humidity: 90% relative humidity at 40ºC
(104ºF) maximum.

You will likely lose data below 0ºC (32ºF), but you can have
storage temperatures down to -20ºC (-4ºF) without damaging
the hardware.

C
Character set

This appendix contains tables defining your palmtop character set as well as instructions for generating special characters. Your palmtop supports code pages 850 and 437.
The built-in applications (except 1-2-3) and System-Manager-compliant applications (see chapter 24 for a description) use code page 850.
1-2-3 uses LICS, the Lotus International Character Set. Most LICS characters are included in code page 850; the few that are not included will not display on the palmtop.
Any DOS applications you load and run will by default use code page 437. If an application requires code page 850, you can select it using the Setup Utility (see chapter 21).

Character set tables

The following two pages contain the 437 and 850 code-page tables.

437 English

0	32	64 @	96 `	128 Ç	160 á	192 └	224 α
1 ☺	33 !	65 A	97 a	129 ü	161 í	193 ┴	225 β
2 ☻	34 "	66 B	98 b	130 é	162 ó	194 ┬	226 Γ
3 ♥	35 #	67 C	99 c	131 â	163 ú	195 ├	227 Π
4 ♦	36 $	68 D	100 d	132 ä	164 ñ	196 ─	228 Σ
5 ♣	37 %	69 E	101 e	133 à	165 Ñ	197 ┼	229 σ
6 ♠	38 &	70 F	102 f	134 å	166 ª	198 ╞	230 µ
7 •	39 '	71 G	103 g	135 ç	167 º	199 ╟	231 γ
8 ◘	40 (	72 H	104 h	136 ê	168 ¿	200 ╚	232 Φ
9 ○	41)	73 I	105 i	137 ë	169 ⌐	201 ╔	233 Θ
10 ◙	42 *	74 J	106 j	138 è	170 ¬	202 ╩	234 Ω
11 ♂	43 +	75 K	107 k	139 ï	171 1/2	203 ╦	235 δ
12 ♀	44 ,	76 L	108 l	140 î	172 1/4	204 ╠	236 ∞
13 ♪	45 -	77 M	109 m	141 ì	173 ¡	205 =	237 Ø
14 ♫	46 .	78 N	110 n	142 Ä	174 «	206 ╬	238 ∈
15 ☼	47 /	79 O	111 o	143 Å	175 »	207 ±	239 ∩
16 ►	48 0	80 P	112 p	144 É	176 ░	208 ╨	240 ≡
17 ◄	49 1	81 Q	113 q	145 æ	177 ▒	209 ╤	241 ±
18 ↕	50 2	82 R	114 r	146 Æ	178 ▓	210 ╥	242 ≥
19 ‼	51 3	83 S	115 s	147 ô	179 │	211 ╙	243 ≤
20 ¶	52 4	84 T	116 t	148 ö	180 ┤	212 ╘	244 ⌠
21 §	53 5	85 U	117 u	149 ò	181 ╡	213 ╒	245 ⌡
22 ▬	54 6	86 V	118 v	150 û	182 ╢	214 ╓	246 ÷
23 ↨	55 7	87 W	119 w	151 ù	183 ╖	215 ╫	247 ≈
24 ↑	56 8	88 X	120 x	152 ÿ	184 ╕	216 ╪	248 °
25 ↓	57 9	89 Y	121 y	153 Ö	185 ╣	217 ┘	249 ·
26 →	58 :	90 Z	122 z	154 Ü	186 ║	218 ┌	250 •
27 ←	59 ;	91 [	123 {	155 ¢	187 ╗	219 █	251 √
28 ∟	60 <	92 \	124		156 £	188 ╝	220 ▄	252 ⁿ
29 ↔	61 =	93]	125 }	157 ¥	189 ╜	221 ▌	253 ²
30 ▲	62 >	94 ^	126 ~	158 Pt	190 ╛	222 ▐	254 ■
31 ▼	63 ?	95 _	127 ⌂	159 ƒ	191 ┐	223 ▀	255

850 Multilingual (Latin I)

0	32	64 @	96 `	128 Ç	160 á	192 └	224 Ó
1 ☺	33 !	65 A	97 a	129 ü	161 í	193 ┴	225 ß
2 ☻	34 "	66 B	98 b	130 é	162 ó	194 ┬	226 Ô
3 ♥	35 #	67 C	99 c	131 â	163 ú	195 ├	227 Ò
4 ♦	36 $	68 D	100 d	132 ä	164 ñ	196 ─	228 õ
5 ♣	37 %	69 E	101 e	133 à	165 Ñ	197 ┼	229 Õ
6 ♠	38 &	70 F	102 f	134 å	166 ª	198 ã	230 m
7 •	39 '	71 G	103 g	135 ç	167 º	199 Ã	231 þ
8 ▪	40 (	72 H	104 h	136 ê	168 ¿	200 ╚	232 Þ
9 ○	41)	73 I	105 i	137 ë	169 ®	201 ╔	233 Ú
10 ◙	42 *	74 J	106 j	138 è	170 ¬	202 ╩	234 Û
11 ♂	43 +	75 K	107 k	139 ï	171 ½	203 ╦	235 Ù
12 ♀	44 ,	76 L	108 l	140 î	172 ¼	204 ╠	236 ý
13 ♪	45 -	77 M	109 m	141 ì	173 ¡	205 =	237 Ý
14 ♫	46 .	78 N	110 n	142 Ä	174 «	206 ╬	238 −
15 ☼	47 /	79 O	111 o	143 Å	175 »	207 ¤	239 ´
16 ►	48 0	80 P	112 p	144 É	176 ░	208 ð	240 -
17 ◄	49 1	81 Q	113 q	145 æ	177 ▒	209 Ð	241 ±
18 ↕	50 2	82 R	114 r	146 Æ	178 ▓	210 Ê	242 =
19 ‼	51 3	83 S	115 s	147 ô	179 │	211 Ë	243 ¾
20 ¶	52 4	84 T	116 t	148 ö	180 ┤	212 È	244 ¶
21 §	53 5	85 U	117 u	149 ò	181 Á	213 ı	245 §
22 ▬	54 6	86 V	118 v	150 û	182 Â	214 Í	246 ÷
23 ↨	55 7	87 W	119 w	151 ù	183 À	215 Î	247 -
24 ↑	56 8	88 X	120 x	152 ÿ	184 ©	216 Ï	248 °
25 ↓	57 9	89 Y	121 y	153 Ö	185 ╣	217 ┘	249 ¨
26 →	58 :	90 Z	122 z	154 Ü	186 ║	218 ┌	250 •
27 ←	59 ;	91 [	123 {	155 ø	187 ╗	219 █	251 ¹
28 ∟	60 <	92 \	124		156 £	188 ╝	220 ▄	252 ³
29 ↔	61 =	93]	125 }	157 Ø	189 ¢	221 ¦	253 ²
30 ▲	62 >	94 ^	126 ~	158 ×	190 ¥	222 Ì	254 ■
31 ▼	63 ?	95 _	127 ⌂	159 ƒ	191 ┐	223 ▀	255

Generating special characters

There are two primary ways to generate special characters:
By holding down [ALT], then holding down [MENU], and then typing a character code. For example, in the code-page 850 table on the previous page you can see that the character code for the ® symbol is 169. So, to generate ® on your palmtop, you would press and hold down [ALT], press and hold down [MENU], and then type 169.
By pressing [FN] and then another key. For example, pressing [FN] [⏲] generates £. Many, but not all special characters in the palmtop character set can be generated this way. Here is the keyboard with those available for code-page 850:

Note that a few keys have shifted [FN] definitions in addition to regular [FN] definitions. For example, pressing [FN] [5] generates Ì, while pressing [⇧] [FN] [5] generates Ä.
Generating accented characters

The keys [R], [T], [Y], [U], and [I] represent accent marks when used with the [FN] key. When you press one of these

keys, it prepares the palmtop to generate an accented form of the next key you press. For example, pressing $\boxed{\text{FN}}$ $\boxed{\text{Y}}$ followed by pressing $\boxed{\text{O}}$ generates Ô.

D
South and East European

language support

How to access character sets and keyboard layouts

The KEYBEZ program enables you to select a South East European language and load its corresponding character set, keyboard layout, and national settings. Here are the available languages:

Language	Code Page	Keyboard
Byelorussian (BL)	866	Cyrillic
Croatian (CR)	852	Slavic
Czech (CZ)	852	Slavic
Greek (GK)	437G	Greek
Hungarian (HU)	852	Hungarian
Polish (PL)	852	Polish
Romanian (RO)	852	Slavic
Russian (RU)	866	Cyrillic
Slovak (SL)	852	Slavic
Slovene (SV)	852	Slavic
Turkish (TK)	437T	Turkish
Ukrainian (UR)	866	Cyrillic

The various code pages and keyboard layouts are found at the end of this appendix.

Note

1-2-3 supports only CP 850. If another code page is loaded, you may have trouble displaying or printing certain characters within 1-2-3.

Running KEYBEZ

Modify your AUTOEXEC.BAT file to include the KEYBEZ command (with language option) on the line immediately preceding the 100 line.

SYNTAX: KEYBEZ [BL|CR|CZ|GK|HU|PL|RO|RU|SL|SV|TK|UR]

Example: Implementing Russian Language Support

Use the Memo Editor to open your AUTOEXEC.BAT file (located in the root directory of C:\ or D:\)

Add the line KEYBEZ RU *just before the* 100 *line.*

Save your new version of the AUTOEXEC.BAT file in the root directory C:\.

Ensure that your CONFIG.SYS file is in the root directory C:\. Copy it from D:\ if necessary.

Close all open applications in preparation to reboot.

Reboot by pressing CTRL + ALT + DEL .

When you see the Topcard screen, the Cyrillic Code Page (CP 866) and keyboard are ready to use. Press CTRL to toggle the keyboard back and forth between English and Cyrillic. For positions of the Cyrillic characters, see the Cyrillic.

Accessing the characters

You access characters in one of two ways, depending on which keyboard layout is implemented.

For the Cyrillic and Greek keyboards, the characters on the overlay *become* the primary keys, replacing the English key definitions. For example, when the Greek keyboard is implemented and you press U , you generate a θ.

However, you can switch back and forth between Cyrillic or

Greek and English by pressing the [CTRL] key—press it once and you have the Cyrillic or Greek keys, press it again and you're back to English.

Note that while in Cyrillic mode, you may access numbers and punctuation symbols by using the [FN] followed by the number or [FN] [⇧] followed by the desired punctuation. For example, to access the ';' character while in Cyrillic mode, press [FN] [⇧] [4].

For the other keyboards (Hungarian, Polish, Slavic, and Turkish), the special characters are an extension of the English keyboard and are accessed using the [FN] key. For example, to generate Ö when the Hungarian keyboard is implemented, you press [FN] [K].

Some of the keys shown on the overlays for these keyboards show two characters above the primary key (see pages D-5 and D-6). In these cases the left character is the [⇧] key definition and the right character is the [FN] key definition. For example, above [8] on the Slavic keyboard are the characters] and |. To generate] you press [⇧] [8], and to generate ¦ you press [FN] [8].

Printing considerations

In order to print the character sets implemented by KEYBEZ, you must have a printer that supports the character set you want to print.

For example, before you can print a file containing CP 866 (Cyrillic) characters, you must first configure your printer to support this character set. See the documentation for your particular printer.

Keyboard overlays & code page tables

The following pages illustrate the keyboard overlays and code pages KEYBEZ implements. A set of all six overlays (HP Part No. B2539A) is available. Contact your Hewlett-Packard sales office or dealer, or Hewlett-Packard's South East European Sales headquarters (address below), for information on where to purchase this set of overlays.

Hewlett-Packard Ges.m.b.H.

Lieblgasse 1

A-1222 Vienna/Austria

Telephone: +43 1 2500-0

FAX: +43 1 2500-444

Note

If calling from the United States, dial 1 011 43 1 2500-0.

For FAX's from the U.S. dial 1 011 43 1 2500-444.

Greek and Cyrillic overlays

Hungarian and Polish overlays
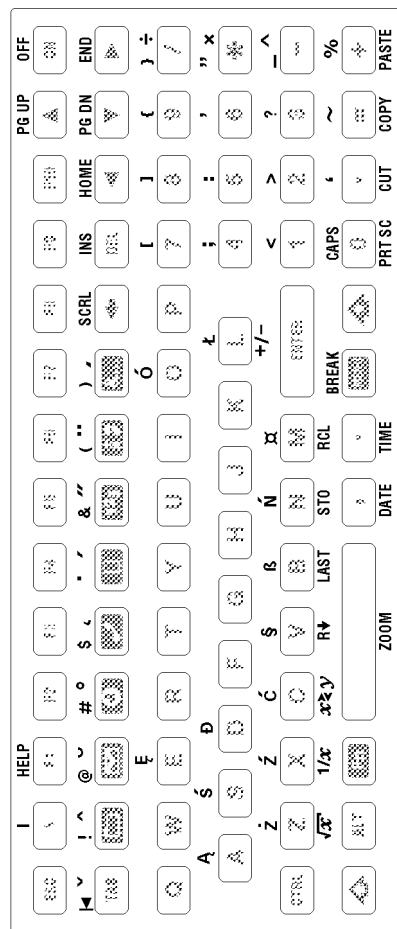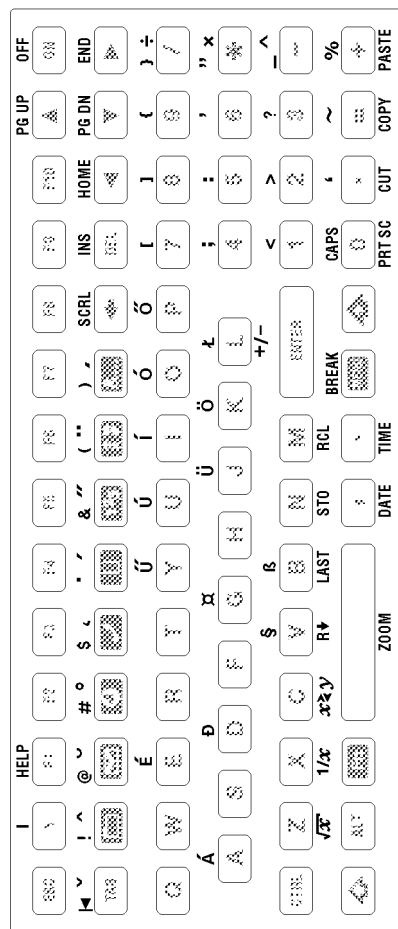
Slavic and Turkish overlays
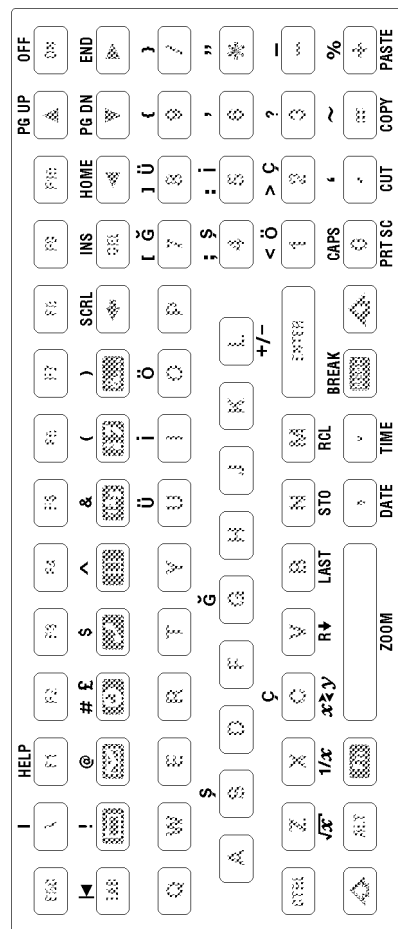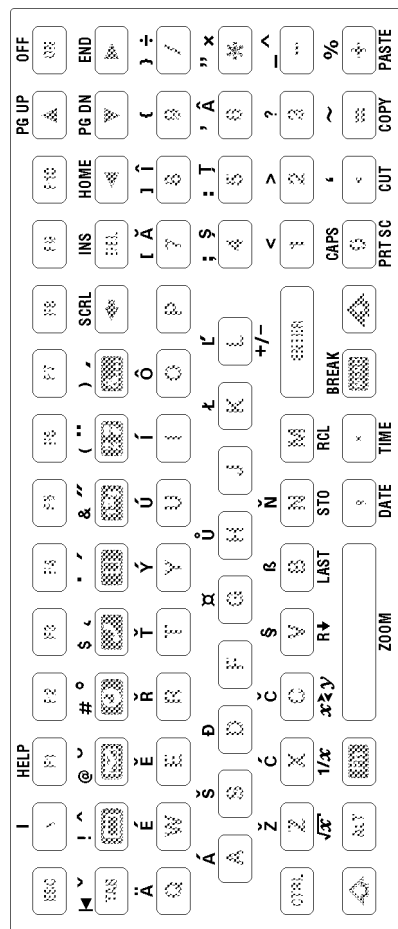
CP 437G (PC Latin/Greek)

A 128	P 144	ı 160	⠿ 176	└ 192	⊥ 208	ω 224	≡ 240
B 129	Σ 145	κ 161	▓ 177	⊥ 193	╤ 209	ά 225	± 241
Γ 130	T 146	λ 162	▦ 178	┬ 194	╥ 210	έ 226	≥ 242
Δ 131	Y 147	μ 163	│ 179	├ 195	╙ 211	ή 227	≤ 243
E 132	Φ 148	ν 164	┤ 180	─ 196	╘ 212	ϊ 228	⌠ 244
Z 133	X 149	ξ 165	╡ 181	┼ 197	╒ 213	ί 229	⌡ 245
H 134	Ψ 150	ο 166	╢ 182	╞ 198	╓ 214	ό 230	÷ 246
Θ 135	Ω 151	π 167	╖ 183	╟ 199	╫ 215	ύ 231	≈ 247
I 136	α 152	ρ 168	╕ 184	╚ 200	╪ 216	ϋ 232	° 248
K 137	β 153	σ 169	╣ 185	╔ 201	┘ 217	ώ 233	• 249
Λ 138	γ 154	ς 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
M 139	δ 155	τ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
N 140	ε 156	υ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
Ξ 141	ζ 157	φ 173	╜ 189	═ 205	▌ 221	φ 237	² 253
O 142	η 158	χ 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
Π 143	θ 159	ψ 175	┐ 191	╧ 207	▀ 223	∩ 239	 255

CP 437T (PC Turkish)

Ç 128	É 144	á 160	⠿ 176	└ 192	⊥ 208	α 224	≡ 240
ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
é 130	Æ 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
å 134	û 150	Ğ 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
ç 135	ù 151	ğ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
ê 136	İ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	· 249
è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
ı 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	φ 237	² 253
Ä 142	Ş 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
Å 143	ş 159	» 175	┐ 191	⊥ 207	▄ 223	∩ 239	255

CP 852 (PC Latin-2)

Ç 128	É 144	á 160	▓ 176	└ 192	đ 208	Ó 224	- 240
ü 129	Ĺ 145	í 161	▒ 177	┴ 193	Đ 209	ß 225	˝ 241
é 130	ĺ 146	ó 162	▦ 178	┬ 194	Ď 210	Ô 226	˛ 242
â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ń 227	ˇ 243
ä 132	ö 148	Ą 164	┤ 180	— 196	ď 212	ń 228	˘ 244
ů 133	Ľ 149	ą 165	Á 181	┼ 197	Ň 213	ň 229	§ 245
ć 134	ľ 150	Ž 166	Â 182	Ă 198	Í 214	Š 230	÷ 246
ç 135	Ś 151	ž 167	Ě 183	ă 199	Î 215	š 231	¸ 247
ł 136	ś 152	Ę 168	Ş 184	╚ 200	ě 216	Ŕ 232	° 248
ë 137	Ö 153	ę 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
Ő 138	Ü 154	170	║ 186	╩ 202	┌ 218	ŕ 234	· 250
ő 139	Ť 155	ź 171	╗ 187	╦ 203	█ 219	Ű 235	ű 251
î 140	ť 156	Č 172	╝ 188	╠ 204	▄ 220	ý 236	Ř 252
Ź 141	Ł 157	ş 173	Ż 189	═ 205	Ţ 221	Ý 237	ř 253
Ä 142	× 158	« 174	ż 190	╬ 206	Ů 222	ţ 238	■ 254
Ć 143	č 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	255

CP 866 (PC Cyrillic)

А 128	Р 144	а 160	⠿ 176	└ 192	⊥ 208	р 224	Ё 240
Б 129	С 145	б 161	▨ 177	⊥ 193	= 209	с 225	ё 241
В 130	Т 146	в 162	▦ 178	┬ 194	╥ 210	т 226	Є 242
Г 131	У 147	г 163	│ 179	├ 195	╙ 211	у 227	є 243
Д 132	Ф 148	д 164	┤ 180	— 196	╘ 212	ф 228	Ї 244
Е 133	Х 149	е 165	╡ 181	+ 197	╒ 213	х 229	ї 245
Ж 134	Ц 150	ж 166	╢ 182	╞ 198	╓ 214	ц 230	Ў 246
З 135	Ч 151	з 167	╖ 183	╟ 199	╫ 215	ч 231	ў 247
И 136	Ш 152	и 168	╕ 184	╚ 200	╪ 216	ш 232	° 248
Й 137	Щ 153	й 169	╣ 185	╔ 201	┘ 217	щ 233	• 249
К 138	Ъ 154	к 170	║ 186	╩ 202	┌ 218	ъ 234	· 250
Л 139	Ы 155	л 171	╗ 187	╦ 203	█ 219	ы 235	√ 251
М 140	Ь 156	м 172	╝ 188	╠ 204	▄ 220	ь 236	№ 252
Н 141	Э 157	н 173	╜ 189	= 205	█ 221	э 237	¤ 253
О 142	Ю 158	о 174	╛ 190	╬ 206	█ 222	ю 238	■ 254
П 143	Я 159	п 175	┐ 191	⊥ 207	▀ 223	я 239	255

E
Regulatory information

U.S.A.:

This PC generates and uses radio frequency energy and may interfere with radio and television reception. It complies with the limits for a Class B computing device as specified in Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential area. Operation of this device is subject to the following two conditions: (1) It may not cause harmful interference, and (2) it must accept any interference received, including interference that may cause undesired operation. In the unlikely event that there is interference to radio or television reception (which can be determined by turning the palmtop off and on), try the following:

Reorienting or relocating the receiving antenna (radio or television).

Relocating the palmtop with respect to the receiver.

Any changes or modifications not expressly approved by the Hewlett-Packard Company could void the authority to operate this equipment.

For more information, consult your dealer, an experienced radio/television technician, or the following booklet, prepared by the Federal Communications Commission: *How to Identify and Resolve Radio-TV Interference Problems.* This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock Number 004-000-00345-4. At the first printing of this manual, the telephone number was (202) 783-3238.

The HP F1015A Serial Interface Cable must be used to connect the palmtop to printers, computers, and other peripheral devices to ensure compliance with the Class B emission limits for residential use.

Canada:

This PC apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Europe:

Declaration of Conformity (according to ISO/IEC Guide 22 and EN 45014)

Manufacturer: Hewlett-Packard Company

Address:

Hewlett-Packard Co.	Hewlett-Packard Co.
Corvallis Division	Singapore (PTE) Ltd.
1000 NE Circle Blvd.	72 Bendemeer Rd.
Corvallis, OR 97330	01/01-07/07
	Singapore 1233

declares that the following product

Product name: Palmtop Personal Computer
Model Number: HP 200LX
Options: All

conforms to the following product specifications

Safety: IEC 950:1986+A1,A2 / EN 60950 (1988)+A1,A2

EMC: CISPR 22:1985 / EN 55022 (1988): Class B (2)

IEC 801-2:1991 / prEN 55024-2 (1992): 3kV CD, 8kV AD

IEC 801-3:1984 / prEN 55024-3 (1991): 3V/m

IEC 801-4:1988 / prEN 55024-4 (1992): 0.5kV signal lines, 1.0kV power lines

Supplementary Information:

F
Games

Your palmtop has two games built in for your entertainment. The games are:

Hearts & Bones, where you try to capture hearts without stepping on bones.

Lair of Squid, where you try to escape an underwater maze while being pursued by deadly squid.

Games can drain batteries at a higher than normal rate. So, to get your best battery life, use the AC adapter when you play.

To start Hearts & Bones:

Press &... + *to see the Hearts & Bones opening screen.*
Press F4 *(Help) to see information on how to play the game. Use* ▼ *to move through the tutorial screens.*
When you've finished the tutorial screens, press F1 *to start the game.*
To quit the game, press ESC.

To start Lair of Squid:

Press &... U *to see the Lair of Squid opening screen.*
Press F1 *(Help) to see information on how to play the game. Use* ▼ *to move through the tutorial screens.*
When you've finished the tutorial screens, press ESC *to exit the tutorial and then press* SPACEBAR *to start the game.*
To quit the game, press ESC.

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