EPSON
PX-8

Business Simulations Portable Cardbox — Plus

EPSON PX-8
Portable
Cardbox – Plus

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GETTING STARTED

Unpacking

The contents of your Portable Cardbox-Plus package should be :

The Portable Cardbox-Plus Manual
A Portable Cardbox-Plus ROM Capsule
A Microcassette tape of example formats

The ROM capsule contains your software, don't be deceived by its small size - nearly 32000 characters of sophisticated programming are contained in this tiny chip. Notice that the ROM has been mounted for you on a plastic carrier. This is to make sure that the delicate "legs" of the ROM are not damaged when inserted into the PX-8. This technique significantly reduces the possibility of damaging your chip, although care should always be exercised - after all, if you need to get another one you have to pay for it !

Inserting the ROM

In order to install your Portable Cardbox-Plus ROM you will need to switch off your PX-8 and turn it over. On the bottom of the PX-8 is a panel which lifts off to reveal the ROM compartment.

There are two ROM sockets side by side. Remove either of the installed ROMs and replace it with your ROM. There is a section in your PX-8 User Manual concerning ROM removal and insertion. This can be found on pages 4-15 to 4-18.

Take your ROM capsule and hold it so that the plastic tab with two holes is towards the back of the PX-8. Then place the carrier over the ROM socket so that it fits loosely in the socket.

The carrier and socket are made like a key and a lock. It is only possible to fit the carrier into the socket the correct way.

Once positioned correctly, push the ROM and the plastic carrier so that they fit level with the top of the socket. Use two fingers, one at the top and one at the bottom, to ensure an even pressure.

Lastly replace the plastic cover to the ROM compartment and switch on your PX-8. If you have your Menu configured correctly CARDBOX.COM should appear on the Menu.

Portable Cardbox-Plus on ROM

Normally Cardbox-Plus is distributed on diskette for larger computers, such as the Epson QX-10 desktop system. However, PC+ has been specially configured to take advantage of the unique facilities offered by the PX-8.

Since the PX-8 has an 8 line screen, instead of the 24 lines available on the Desktop systems, the screen has been modified so that "slices" may be viewed. PC+ uses 18 lines as an electronic "card" and "slices" of 6 lines each may be viewed by pressing the Programmable Function keys PF1, PF2 or PF3.

However, when using PC+, PC+ will select the slice required every time the cursor moves, but this may be overridden by using the PF or HELP keys.

Further information concerning the screen is contained in the section headed "The Display".

First Steps in using Portable Cardbox-plus - for the Impatient

This section is for the impatient user who wishes to have a quick overview and to start using PC+. It is one way of getting started quickly but it is reccommended that you read the majority of this manual to obtain the best results from your PX-8 and PC+.

Firstly you should have installed your PC+ ROM capsule in the PX-8. If you have not done this, please read Appendix A for full details on how to install your *ROM*.

Portable Cardbox-plus Command Structure

There is no Menu system with PC+ as there is with the full diskette version. This has been replaced by a simple structure containing four main commands.

CARDBOX MYFILE.FMT *This creates a Format file.

CARDBOX MYFILE.FIL * This creates a Datafile.

CARDBOX MYFILE.FMT This means Edit the Format file.

CARDBOX MYFILE This means Use the database.

The * symbol means CREATE files.

Typing **CARDBOX** on its own will produce the error message **BAD FILENAME**

So, let's design a simple Name and Address file for keeping our customers' details on.

Firstly, some thought is required on how we wish to retrieve the information and what we wish to hold in the database.

Since we want a very simple example to show the relationship between the various CARDBOX commands this should not take long.

We want the screen to look like this :

Name > 20 characters Telephone No > 15 characters
Address > 25 characters
> 25
> 25
> 25
Post Code > 10 characters

We will want to retrieve cards by Name usually, but sometimes by the Post Code. When we design our system these fields will be automatically indexed.

So let's start by creating our **FORMAT** file. This has a filetype of **.FMT** and it describes the shape of the datafile to PC+. If you have your Menu system operating, then by using the cursor arrow keys, position the cursor so that **CARDBOX.COM** is flashing. It will also appear on the top line with either a B: or C: in front of it depending on which ROM socket the ROM is inserted in.

If we type in the filename as **CUSTOMER.FMT**, this will appear after **CARDBOX.COM** and in order to create the file we need an asterisk after the filename. Ensure that there is a space after the **.FMT** or PC+ will not be able to see the ∗. Now hit the RETURN key. The PX-8 will confirm your instructions and then PC+ will take over and the screen below will be displayed :

CARDBOX-PLUS File = CUSTOMER.FMT SELECT FUNCTION

Enter Function code: ■

Not very helpful, but by pressing the **HELP** key, all the options open to you are displayed.

You can do this at any time when you are using PC+

If we keep it simple and press F, we can start to enter our format. Do it Now.

READY

CARDBOX-Plus File= CUSTOMER.FMT DEFINE FIELD > <

Enter Function code :
Enter identifying letter for field to edit:
Fields:

Defining the NAME

PC+ is now asking us for a letter from A to Z to identify our first field. This also determines the sequence in which the data is typed in. Type in A
PC+ is now asking for a two letter name. This name is used when selecting records from the database, so it should be as meaningful as possible. Our first field is called **NAME** so type in **NA** and press **RETURN**. It is good practice to use the first letters of your "Caption" where possible.

There is now a great deal of information on the screen. On the top line we are told we are defining field A. Most of the commands in EDIT mode are one letter in length. This is the first letter of the full command. Let's give the field a Caption which will be displayed each time data is typed in. Press C and type in **Name >** and press RETURN.

PC+ has remembered this and is now waiting for us to tell it the Start and End of the field. Press S for the start of the field. Notice that on the bottom line the **ROW** and **COL** positions have been filled in. Now press the right arrow key until **COL=28**. That will give us a caption of 6 characters and a field of 20 characters for the name to

the left of the cursor. Now press **E** for End and the caption complete with field appears. We need to set the **NAME** field to be automatically indexed. Press the I key once and the display changes from **INDEX [none]** to **INDEX [MAN]**. Press the I key again and **INDEX [AUTO]** appears which is what we want.
Now press the ESC key to exit. We are now returned to **SELECT FUNCTION**.

Defining Address line 1

We start to define the first line of the address by typing **F** and **B**. The Name of this field will be **A1**.

Using the arrow keys, press the ↓ key once and the ← until we are in **COL 1**. Press **C** for caption and type **Address >**. Upper and lower case characters may be used to make the display more attractive. Press S for the start of the field. Press the → key until the **COL=36**. This gives us a field length of 25 characters. This does not need indexing, so we press **ESC** to exit.

Defining Address line 2

Type **F, C** and **A2**.
We won't use a caption this time, just start and end. Press **HELP** to switch off the **HELP** information. This enables us to use the cursor keys to position the cursor underneath the first address line to the left of the > character. Press S **(COL=09)**. Use the → key to go to **COL=37**, press **E** for end. The line is too long isn't it ? so just move the cursor to the left by one character, press **E** and it is corrected. Position the cursor at **COL=10** underneath the > and press S. This shows that you shouldn't worry about making mistakes within the Format, since you can always correct it.
Press **ESC** to end.

Defining Address Line 3

Repeat the above without the **HELP** feature on. It's good practice !

Defining Address Line 4

repeat again

Defining the Post Code

Type **F, F, PC, C** for a caption,type **Post Code** > RETURN.
Move the cursor to **ROW=08 COL=1**, press **S** then move to **COL=23**, press E. This will give you a field of 10 characters. Since we may wish to retrieve information by Selecting on this field, we need to Index it. Press I twice and **Index [AUTO]** should appear.

Press **ESC** to end.

Defining the Telephone Number

Type **F, G, TN** RETURN
Using the arrow keys move the cursor to **ROW=03 COL=39**
Press C for Caption, type **Telephone No** > RETURN
Press S for start and using the arrow keys go to **COL=69**, press **E** for end. Press **ESC** to Exit.

Press the **HELP** key - you will see that we have two options, to abandon this "edit" session and start again or to save the file.
Press X to save the file and exit.

We are now returned to the PX-8 Menu.

Creating a Datafile

After positioning **CARDBOX.COM** in the top line, enter **CUSTOMER.FIL** *, press RETURN.
The screen displayed should be :

Level 0 - NO RECORDS SELECTED **READY**

Enter command:■

Pressing HELP reveals a list of commands available. Since we have just created the file we cannot use it now. Therefore, we must type in QU and press the RETURN key, notice how PC+ fills in the rest of the command.

Using the Database

After positioning **CARDBOX.COM** in the top line, type **CUSTOMER** and press RETURN.
You will now be able to Use your database.
The first time you access a new datafile nothing shows on the screen until you decide to **ADd** a record. Do that now type, **AD RETURN**.
Your screen has now appeared. Type in your name and address, pressing RETURN after each line. After the **Telephone No** has been completed you are returned to the **NAME** field, so that if you wish you may edit any errors from the card before you store the card in the database. If you are happy with the contents press **ESC** and **S** to store the card.
You may now continue to **AD**d records or to **PR**int them or to **SE**lect records from your database when more records have been entered.
The full explanations for these commands appear later in this manual.

Editing the Format file

Now that you have designed and implemented your first PC+ database, let's go back and make changes to the format file and thus, the database.

Instead of having one telephone number, let's store a Work number as well as a Home telephone number.

In order to edit the format file, we need to type

CARDBOX CUSTOMER.FMT

The format should now be on the screen. Let's amend the original telephone number to be the Home number.

Type **F** and select field **G**. Use the → arrow key until the **COL=39**.

Press **C** for caption and enter **Home Telephone** > RETURN. It should just fit. Press **ESC** to exit.

To create the Work number, we press **F** and select **H** for the new field. Press the ↓ arrow key and press C for caption. Type in **Work Telephone** >, RETURN and press **S**. Using the → arrow key move the cursor under the > character. Press E for end and the new entry appears. Press ESC to exit.

To store the changed format file, press **X.**
However, if we decided not to make these changes permanent, pressing Q would leave the file unchanged.

Press X now, to store the new format.

We are now returned to the main PX-8 Menu.

Type in **CUSTOMER** after positioning **CARDBOX.COM** in the entry line and press RETURN.

The screen should display :

Level 0 - Record 1 of 1 **READY**
Name >▶ **◀ Home Telephone >**
Address > **Work Telephone >**

Post Code >▶ **◀**
Enter command: ■

Now additional cards may be entered or existing cards EDited to include the new telephone numbers. In this way PC+ offers a flexible means of incorporating changes in the database design without damaging existing data.

This section tells you what Cardbox-Plus does and does not do, and how to use this manual. Read this section even if you read nothing else.

What Portable Cardbox-Plus does

In its simplest form, Cardbox-Plus could be described as an electronic card index system. It displays individual records on the PX-8 screen in a card-like way. Each card is drawn on the screen to your own design, and information is both entered and retrieved using this format.

The most important feature of Cardbox-Plus is that it enables you to index any item of information on the card for fast retrieval. When you subsequently use an indexed item as a search criterion, Cardbox-Plus does not have to read through every card in the database; the index tells it exactly where to find the applicable cards, and this makes it equally fast whether you have sixty records in your database or sixty thousand.

Formats: You design the format of the cards yourself; with captions, boxes around various fields, and any other feature which will make the card easier to fill in and read. You can alter or extend the format of existing cards at any time. If you do not wish to display all the information on a card, or want it shown in a different order or with different captions, Cardbox-Plus allows you to create extra format definitions to provide different "windows" on the same data. The same choice of alternative formats is available when you print or post data for processing by other programs.

Flexibility: When designing your record card for a new database, you are not committing yourself to the information which it is to accommodate or to the questions which you will want to ask. Make a reasonable guess and design the initial format accordingly. If you find with experience that you have to add or extend fields, or to index more or different items for fast retrieval, Cardbox-Plus will allow you to do so with ease.

Indexing: Cardbox-Plus can index each card under any number of headings; you can ask it to index any word, number or date on which you may eventually wish to retrieve records, and you can arrange for the automatic indexing of all key information.

Retrieval: Cardbox-Plus can find all the cards containing a given indexed item or combination of items. You can look for any string of characters, or even for partially defined strings if, for instance, you are not sure about the spelling of a name. You can also look for specific numeric values or dates, or for ranges of numbers and dates.

To retrieve the records you want, you can specify any field in which the search criterion is to be met, and you can build up complex searches using appropriate combinations of the available commands.

Extraction: When you have selected the cards you want, you can look at them and, if you wish, refine the selection further. You can sort the cards into sequence (**on one field only**), print them, pass them to a word-processing program for inclusion in standard letters, etc, or to any other program for further processing. In doing so, you can use either the normal format of the card or any special format designed for a specific purpose.

Ease of use: Cardbox-Plus always tells you what you can do at each stage. If you make a mistake in any command, it gives you informative error messages, and makes it easy for you to correct it.

Capacity:

Size of database:	8 megabytes
Number of cards:	65,500
Size of card:	26 fields 1,404 characters
Max. field size:	1,404 characters
Indexed words - number:	no limit
- length:	no limit, but only first 32 characters are significant.

A Cardbox-Plus database must be contained on a single drive or device: so the 8-megabyte limit above cannot actually be reached unless you have a hard disk. On a RAM-disk, the limits are about 20K without the memory expansion or about 119K with it. On a floppy disk, you are limited to the capacity of a single disk.

What Cardbox-Plus does not do

Cardbox-Plus does not do arithmetic. It cannot compute fields on the basis of values in other fields; it cannot compute totals or any other results from the cards you select: it just shows you the cards. You can, however, use the WRITE command to pass selected cards to other programs (in BASIC, perhaps) which can do further processing for you.

Cardbox-Plus does not validate the data you enter. It indexes everything you tell it to, whether or not it makes sense. You can, however, do some validation by looking at the indexes from time to time (using SELECT with control-Q) and weeding out cards which are indexed under unlikely values.

Cardbox-Plus does not relate items in one file to items in another: it is strictly a one-file-at-a-time program. You can often get round this problem by judicious design of cards.

How to use this manual

First, install Cardbox-Plus: Appendix A tells you how to do this.

Second, look at the General Information section. It will help you understand the rest of the manual, and stop you from doing anything disastrous.

Third, use the Tutorial section to explore Cardbox-Plus and the sample database provided. This is not compulsory, but it helps you to get a lot more out of Cardbox-Plus when you come to design your own databases.

When you are designing a database, look at Appendix B: it will remind you of the sort of things you ought to keep in mind when deciding on a design.

Otherwise, what you do with the manual depends on your temperament. You may want to read through the whole of the "Using Cardbox-Plus" section, or you may prefer to plunge straight into using the program itself, and look things up in the manual only when you need to. Cardbox-Plus has such thorough prompting that you shouldn't need to look things up very often.

If you are interested in seeing the differences between this portable version of Cardbox-Plus and the full version, look at Appendix E.

If you are using disks, do remember not to do anything adventurous like changing disks in the middle of a Cardbox-Plus session (if you have to change disks, see the General Information section first), and do remember always to terminate your "Use database" sessions by using the QUIT command. Remember that switching the machine off without pressing the CTRL key terminates the current program at once, and may therefore damage the database you are currently using.

DO NOT SWITCH THE MACHINE OFF IN THE MIDDLE OF USING CARDBOX-PLUS

GENERAL

This chapter covers various topics which come up again and again as you use Cardbox-Plus, and they are discussed here to avoid repetitive explanations throughout the manual. The topics are:

- The display
- The keyboard
- Setting options
- Filenames
- Files used
- Alternative format files
- What drives to use
- Changing disks

The Display

On a full screen with 24 lines, Cardbox-Plus's display is divided into three parts:

1. In the top two lines of the screen, Cardbox-Plus tells you what function it is performing, and what its current *status* is. Possible values of the status are:

   READY - Cardbox-Plus is waiting for you to type something.
   WAIT - Cardbox-Plus is working and will not listen to what you type.
   LINK - Cardbox-Plus is changing from one program to another.
   INDEX - Cardbox-Plus is indexing or un-indexing a record.
   PRINT - Cardbox-Plus is sending text to your printer.

2. In the four bottom lines of the screen, Cardbox-Plus reminds you of the various things you can do at each stage, listing the keys you can press or the commands you can enter.

3. In the middle 18 lines of the screen, Cardbox-Plus displays any other information: cards, menus, etc.

Exactly the same "screen" is generated on the PX-8, but since there are only eight lines available, it can only be displayed in slices. Keys **PF1, PF2** and **PF3** will display the first, second and third 6-line slice of the middle 18 lines, respectively, together with the second of the top "reserved" lines (which gives you the status) and the first of the four bottom lines (where you usually enter commands). To display the two top lines and the bottom four lines in full, hit the **HELP** key: hitting **HELP** again will restore the display to what it was before.

Every time the cursor moves, Cardbox-Plus will select the slice that contains the cursor's new position, because this is most likely to be the part of the screen you need to see, but you can always override this with the **PF** and **HELP** keys.

The Keyboard

When making entries on your cards displayed on the screen, you will use the keyboard like a normal typewriter keyboard, terminating each entry by the RETURN key. However, when entering commands you should not type RETURN as well, unless you are specifically asked to do so by a message displayed on the screen.

Many commands are conveyed to Cardbox-Plus by means of control codes, which you enter by holding down the key marked 'CTRL' and typing the appropriate letter without hitting RETURN: so to type control-B, hold down the CTRL key and hit the letter B. In the manual and on the screen, we use the abbreviation '^B' to mean 'control-B'.

Some control codes play different roles in different functions of Cardbox-Plus, and the current role of each applicable control code is listed on the screen, or at least available for listing by means of the **HELP** key. For instance, when you select the EDIT function, you will have the following list of control codes displayed:

CURSOR: ←→char, ↑↓ line, ^ ←→ word, ^ ↑ start of field,
^ ↓ end of field ^B = previous field,
RETURN = next field ESC = exit

EDIT: INS on/off ^N ins line DEL char CLR clear to end
TAB=index on/off

It is useful to remember the following control codes which apply throughout Cardbox-Plus and which are not displayed to avoid overcrowding the screen:

^O which will restore the screen display if it should become corrupted (e.g. by CP/M error messages),

^P which will copy the contents of the screen to the printer.

Another frequently used control key is the Escape (ESC) key. The role which **ESC** plays in the various functions and at their various stages is explained on the screen; in the example shown above, you would use it to leave the screen-editing mode. In the manual, we often use the expression 'hit ESC G' to say that you should hit **ESC** followed by the letter **G**. Like other control keys, ESC should not be followed by RETURN.

Setting Options

In various stages of operations, Cardbox-Plus offers you a number of options ranging from the choice of main functions to the setting of various parameters. The options which are available at any stage are listed in a menu, which is usually displayed in the lower portion of the screen. Here is a typical menu of options:

WRITE OUTPUT-FILE =* NEW = [YES]
BEGIN=[BEGINNING] MODE=[INTERNAL] SEQ=[NONE]

Some options are followed by a value in square brackets, such as **NEW=[YES]**. These have a restricted set of values, and you can step through them by hitting the initial letter of the option repeatedly, until the value you want appears: in this case, hitting **N** repeatedly will set **NEW** to [NO], [YES], [NO], ...

Other options require you to provide a value, such as the name of the file to be used. An example of an option of this kind is **OUTPUT-FILE=**. When you hit the initial letter of such an option, Cardbox-Plus will ask you to type the filename over a row of dots showing the maximum length of your entry.

It is also useful to remember the following control keys which you can use while entering a filename, or when making entries in your cards:

BS to erase the last character you typed,

^X to erase the entry so that you can retype it from the beginning,

ESC to abandon the entry you are making, i.e. to tell Cardbox-Plus that you don't want to make it after all.

Some combinations of options are invalid (for instance, creating a file that already exists): in such a case, Cardbox-Plus will display an error message or mark the invalid option with an asterisk.

When you have finished setting the options, hit the **ESC** key. Cardbox-Plus will ask:

Hit E to edit options, G to perform function, or Q to abandon function:

Press **E** (Edit) if you want to go back and change some options (for instance, if you hit **ESC** by accident), or **Q** to abandon the function altogether. Otherwise press **G** (Go) to perform the function you have just selected.

If **G** is not displayed in the message, then check whether you have set all options correctly; you might, for instance, have omitted to name a file or named it incorrectly and ignored the error message. Hit **E** to correct your entry.

Filenames

A filename under CP/M consists of three parts: the drive letter, the name, and the filetype.

The **drive letter** is optional, and specifies which device (floppy disk, ROM-disk, RAM-disk, or tape) contains the file. Drive letters are A, B, C, etc and are followed by a colon. If you omit the drive letter and colon, the file is assumed to reside on the "logged drive", usually drive A:.

Note that you cannot use drive H: (the tape) to access database files directly from within Cardbox-Plus, though you can, of course, use PIP to copy database files to and from the tape. You *can* use the tape for other Cardbox-Plus files (format files and dump files), but be sure to set the MCT mode to "Stop". BDOS errors will occur if you use "Nonstop".

The **name** is required, and consists of up to eight letters or numeric digits (some other characters, such as "-" or "/", can also be used). This name is the main way of identifying the file.

The **filetype** consists of up to three letters or numeric digits, and is separated from the name by a full stop. Apart from those which Cardbox-Plus uses for special purposes, such as **.FMT** for format files, and **.FIL** for database files, you can use any filetype which will help you to identify the file, or leave it out altogether.

Examples of filenames are:

B:DATABASE.DMP	XX001.FIL	C:A.B
TESTFILE	CARDBOX.COM	XX001.FMT
H:XX002.FMT	CLIENTS.LST	SALESMAN.FIL

There is also a special form of filename, the **ambiguous filename**, which you can use to refer to an existing file or group of files: you cannot assign an ambiguous filename to a file.

An ambiguous filename can contain question marks as well as normal characters: a question mark will match any character at all in an ordinary filename. An asterisk in either the name or the filetype field has the effect of filling the rest of the field with question marks. Here are some examples of ambiguous filenames:

.	matches all filenames
XX001.*	will match XX001.FIL, XX001.FMT, etc.
XX00?.FMT	will match XX001.FMT, XX002.FMT, etc.

If you enter an ambiguous filename when asked to name a file, Cardbox-Plus will list all files with matching filenames, so you can use ambiguous filenames to get a quick directory listing.

Files used

When you use a Cardbox-Plus database, there are three files involved. If the database is called 'SALESMAN', the files are as follows:

The **format file**, SALESMAN.FMT, defines what information is to be stored in the database, how it should appear on the screen, how it is to be indexed, and how it should be printed. It is also possible to use several format files with the SALESMAN database for special purposes: see "Alternative format files" later in this chapter. Each format file must be of type '.FMT' but you can choose the name yourself.

The **database file**, SALESMAN.FIL, contains all the actual data (card images) and all the indexes needed to retrieve specific cards.

The **retrieval file**, CARDWORK.$$$, is a temporary file used by Cardbox-Plus to hold details of the various selections you make. Cardbox-Plus creates it at the start of a session and deletes it at the end.

Alternative format files

Cardbox-Plus allows you to look at the information in your database in different ways, so that you can have several different card formats which share the same underlying information: different "windows" onto the same data. Fields can be omitted, changed in length, or rearranged, and captions and other fixed text can be altered or omitted.

For example, you may have one format (the main or "native" one) for data entry, with lots of helpful comments, prompts, and captions; with lines round the fields; and so on. It would obviously be wasteful to print out all this extraneous text, so you can have a much more austere format, with just a few brief captions, for when you want to print out summaries or complete lists of the cards in the database. Finally, for printing mailing labels, you may omit all the fields except name and address, omit all captions, and have a completely different layout to fit the mailing labels you use.

Remember, however, that it is only in the native format that you can add or edit records; the alternative formats can be used only for displaying, printing, or posting data for processing by other programs.

What drives to use

When you use Cardbox-Plus, your current drive must be either a RAM-disk or a floppy disk: it cannot be a ROM or the tape. This is because Cardbox-Plus creates the temporary retrieval file CARDWORK.$$$
on the current drive.

> (CP/M tells you the current drive in its command prompt - for instance, **D>** means that the current drive is drive D: - and you can change the current drive by entering a command consisting of the drive letter followed by a colon - for instance, the command **A:** will change the current drive to drive A:)

Database files must also be on the RAM disk or a floppy disk while you are using Cardbox-Plus: if not, you will get "BDOS ERROR" messages when you try to use them. Database files do not necessarily have to be on the current drive.

If you are using your RAM-disk a lot for other things such as word processing, a good way of using Cardbox-Plus is to create a database on the RAM-disk and then copy it to tape using **PIP**. Every time you want to use the database, copy it from the tape to the RAM-disk. After you have finished using it, copy it back to the tape if you have made any changes.

In any case, you should make frequent safety copies if you are using the RAM-disk for the database.

Changing disks

If you are using floppy disks when running Cardbox-Plus, and need to change disks, please note carefully when it is safe to do so, and remember the golden rule: **when in doubt, don't change disks.**

Do not change disks when you are editing or creating a format file.

Do not change the database disk when you are using, creating, or repairing a database. You may change other disks just before entering commands or setting options, but don't change disks while a command is actually being performed.

If you do change disks when you shouldn't, anything can happen:

- Cardbox-Plus may collapse with a message 'BDOS ERR ON X: DISK R/O'
- The database file may be badly damaged;
- Any file on the disk you inserted may be irretrievably damaged.

USING PORTABLE CARDBOX-PLUS

This chapter describes all the day-to-day activities of Cardbox-Plus. It starts with a description of the main options then goes on to explain how you may create your own format files, and create and use your database.

Starting Portable Cardbox-Plus

If you have not yet installed Cardbox-Plus, do so now: see Appendix A for details.

DEFINING FORMAT FILES

The first thing to do when you need a new database is to decide on its format: what information is stored, how it is to be indexed, and how it should appear on the screen. Appendix B will help you if you're wondering where to begin.

These details are stored by Cardbox-Plus in a **format file**. Every database has a format file of the same name (so SALESMAN.FIL has the format file SALESMAN.FMT), which governs the structure of the database. We will say that this format file gives the *native format* of the database.

The native format may be the only one you will ever need: but Cardbox-Plus does allow you to use other formats for special purposes. For instance, you may wish to display the information in the database in a different way, to print summaries of what is in the database, to post selected fields for word-processing, and so on. However, the native format remains important because it is the only one that allows you to add or amend information in your Cardbox-Plus file.

The format file has three parts:

A screen image, which shows the screen as it would look if no information were displayed.

Field definitions, which tell Cardbox-Plus where the information should be displayed and how it is to be indexed. Short captions for each field are usually defined here rather than in the screen image.

Print formats, which define how the information should be printed.

To create a format file, type the command

d:CARDBOX filename.FMT *

(the space before the asterisk is important)

To edit a format file, type the command

d:CARDBOX filename.FMT

Replace 'd' by the drive letter of the device containing Portable Cardbox-Plus (for example, B:CARDBOX if it is in ROM slot B); replace 'filename' by the name of the format file you intend to create or edit (for example, A:SALESMAN).

After Cardbox-Plus has started, the display will look like this:

CARDBOX-Plus File = TESTCARD.FMT SELECT FUNCTION

. . . . . .

Enter function code: ■
E=edit screen F=edit/create field D=delete field P=set print formats
L=list entire format definition EXIT: X=save file
Q=abandon edit

This display is divided into three parts:

The top line gives the status of the system, and shows you what you are doing.

The middle of the screen is taken up by a picture of the form as it has been defined so far, with each field filled with its identifying letter. If you are creating a new format file, this part of the screen will be blank to start with. Remember that you can display this portion of the screen only in slices of six lines at a time, using keys **PF1, PF2** and **PF3**, as explained in the "General" section.

The bottom of the screen displays prompts and error-messages: you also enter commands and field details here. Most of the prompts are only visible if you hit the **HELP** key.

You can now press:

E (Edit) to alter the permanent text and lines on the screen.

F (Field) to create new fields or redefine old ones.

D (Delete) to delete fields.

P (Print) to define how records should be printed.

L (List) to list out on the printer full details of the format defined so far.

X (Exit) to store the new format on the file and return to the main menu.

Q (Quit) to leave the format file unchanged and return to the main menu.

E: Defining the screen format

```
CARDBOX-Plus File = TESTCARD.FMT     EDIT SCREEN


CURSOR: ←=left →=right ↑=up ↓=down ROW=03 COL=01
EDIT: ^V=ins col ^G=del col ^N=ins row ^Y=del row
      ^W=graphics ^Z=draw ON/OFF ^P=print ESC=exit
```

Use this function to define anything you want to appear on every record (headlines, lines round fields), except for short captions for fields, which you can define together with the fields themselves. You do not *have* to use this function, but a suitable definition will probably improve the appearance and readability of the record.

All editing takes place at the cursor position so, before typing anything, make sure the cursor is where you want it to be. Here is a table of the cursor control Keys:

Keys:	Moves the cursor:
←	One character back
→	One character forward
↓	One line down
↑	One line up

The display at the bottom right-hand corner of the screen tells you the current row and column number. You cannot move above row 3 or below row 20: these areas are reserved for use by Cardbox-Plus.

Whatever you type appears on the screen and the resultant form will appear whenever Cardbox-Plus displays records using this format.

In addition to the normal printable characters, you can use ^**W** to produce line-drawing characters on the PX-8.

To make drawing lines easier, you can use ^**Z** to get into and out of DRAW mode:

If DRAW mode is–	OFF	ON
Printing characters:	display and move the cursor forward	display but do not move the cursor
Cursor movement commands	move the cursor	move the cursor and repeat the last character displayed

Thus if you press ^**Z** to turn DRAW mode on, followed by ^**W** to type a line-drawing character, any cursor movements you make will draw a line behind them. Press ^**Z** again to stop this.

The screen may sometimes look a little odd when you are using automatically repeating keys to draw lines in DRAW mode: you may find that the cursor moves without a line appearing. This is because Cardbox-Plus receives the next cursor movement command before it has had time to display the previous character. Don't worry. If you stop typing for a moment, Cardbox-Plus will have time to catch up, and all the missing characters will appear.

Here are a few additional editing commands:

^V	inserts a blank column at the cursor position.
^G	deletes the column at the cursor position
^N	inserts a blank line at the cursor position
^Y	deletes the line at the cursor position
ESC	finishes editing the screen

F: Field Definition

Fields are used to store the text of each record. A record can consist of up to 26 fields where:

- Each field occupies a separate rectangular area of the screen.

- Different fields can be indexed and displayed differently.

- Each field can be referred to by name when you are retrieving information.

Formats other than the native format can refer to all the fields in the database, or to just some of them: this allows you to print and display selected portions of records.

Each field has the following attributes:

Identifier: a single letter (from A to Z) which Cardbox-Plus uses internally to identify the field. The only way that the normal user of Cardbox-Plus is affected by the choice of identifier is that fields are entered and edited in alphabetical order of identifiers. In addition, formats other than the native format use the field identifier to determine which fields to display.

Name: a two-letter name which Cardbox-Plus uses to identify the field to the user. It should be something which reminds the user of what the field is. Since Cardbox-Plus uses the field identifier (and not the name) to distinguish fields, you can change the field name whenever you want.

Caption: up to 16 characters which are displayed on the screen as if they were part of the field, but are not stored with it. If included, these would act as the main prompts to the user of the system.

Index mode: tells Cardbox-Plus what assumptions to make about indexing when the user is entering text into the field, and whether the user can force Cardbox-Plus to index or not index specific words:

Index mode	All words automatically indexed?	Can the user change this?
[NONE]	No	No
[MAN]	No	Yes
[AUTO]	Yes	Yes
[ALL]	Yes	No

Display mode:

If you define a field that spreads over several lines, there are several ways in which Cardbox-Plus can handle them:

DISPLAY=[STD.] is the normal display mode. If the text you put into the field fills more than one line, it is split and the surplus text is put on the second and subsequent lines.

DISPLAY=[WORD] works like DISPLAY=[STD.], but it tries to avoid splitting words between lines by inserting extra spaces if there is room for them in the field. These extra spaces are not stored in the database.

DISPLAY=[LINE] defines a "line-by-line" field. Normally, each field contains just one piece of text; but a "line-by-line" field can contain several lines - for instance, the whole of an address. During data entry, this field will work as if it were several fields, one for each line; but it still remains one field for indexing.

Start of field: the screen position at which the field starts (this is usually the first character of the caption).

End of field: the screen position at which the field ends.

These two attributes define the corners of a rectangular area on the screen. The leftmost and rightmost columns of this area are reserved for use by Cardbox-Plus: the remainder can be used for typing and displaying text.

Cardbox-Plus asks for the field identifier immediately you press the **F** key. If the field is new, it also asks for the field name. Once you are editing the field, you can set the attributes as follows:

Name: hit **N** and enter the new name.

Caption: hit **C** and enter the caption.

Index mode: hit **I** to change the index mode.

Display mode: hit **D** to change the display mode.

Start of field: move the cursor to the starting position and hit **S**.

End of field: move the cursor to the ending position and hit **E**.

As soon as you have defined the start and end of the field, Cardbox-Plus will calculate its length, subtracting the length of the caption, and display it as shown below (the bottom three lines will only be visible if you hit **HELP**):

```
CARDBOX-Plus File=A:TESTCARD.FMT DEFINE FIELD ►A◄ READY

  Name: AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

CURSOR: ←=left →=right ↑=up ↓=down ROW=03 COL=40
EDIT: N=name I=index C=caption S=start E=end field ESC=exit
FIELD NAME NA/ INDEX=[MAN] DISPLAY=[STD.] CAPTION="Name:"
START = ROW=03 COL=02 END = ROW=03 COL=40 LENGTH= 31
```

When you have finished defining all the attributes of the field, hit **ESC** to return to the command level.

> (If the word OVERLAP appears on the bottom right-hand corner of the screen, then the field you are defining overlaps another field or some fixed text. When you correct the overlap and redefine the field, the message will disappear and the field will then be displayed.)

D: Delete field

To delete a field, hit **D**. Cardbox-Plus will ask you for the single character identifier of the field to be deleted. The corresponding field will then disappear from the screen.

P: Print definition

When you are using a database, you can print all or selected records with the PRINT command. The format file defines the way that the records should be printed, as follows:

Page size: the number of lines per page of paper.

Next page: whether Cardbox-Plus should use a form feed to get to the next page, or just count lines.

Top margin: the number of lines Cardbox-Plus should leave blank at the start of each page.

Left margin: the number of columns Cardbox-Plus should leave blank at the start of each line.

Entries per page: the number of records Cardbox-Plus should print on each page.

Blank lines between entries: how many blank lines Cardbox-Plus should leave between successive records on a page.

Each format file contains only one print format definition, so if you have several different print formats then you will need several format files.

When you hit **P**, Cardbox-Plus displays a list of the printing parameters. To alter a parameter, press its initial letter and then type a new value for it: when you have finished setting parameters, press the ESC key.

CARDBOX-Plus File = TESTCARD.FMT PRINT FORMATS

Each entry takes 18 lines and 80 columns.

PAGE-SIZE = 66 TOP-MARGIN = 4
NEXT-PAGE = [FORM FEED] LEFT-MARGIN = 10
ENTRIES-PER-PAGE = 1
BLANK-LINES-BETWEEN-ENTRIES = 0

Enter a letter (P,N,T,L,E,B), or hit ESC to terminate option entry:

P = page size

N = next page (pressing **N** changes the parameter from **[FORM FEED]** to **[COUNT LINES]** and back again).

T = top margin

L = left margin

E = entries per page

B = blank lines between entries

ESC = exit

L: List file

To print out full details of the screen format, the field definitions, and the print formats, hit **L**. The output goes to the printer.

X: Exit

Q: Abandon

When you have finished designing the form, defining fields, and defining print formats, you can use **X** or **S** to exit, storing the new version of the format file, or press **Q** to throw away the changes you have made and leave the format files unchanged.

Using Different Formats

You may wish to use different format files with the same database, or you may wish to edit an existing format file. This section explains how Cardbox-Plus handles these things.

Think of the fields as windows onto the database. You only see what fits in the windows, but the information you don't see is not lost, just invisible. When you add or edit a record, it takes on the shape of the window in use at the time.

When Cardbox-Plus reads a record from the database, it performs the following actions for each field it finds:

- If the field is not defined in the current format file, Cardbox-Plus ignores it.
- Otherwise, Cardbox-Plus reads the field up to the length defined in the format file, and discards any surplus text.

When Cardbox-Plus writes a record to the database, it writes out every field on the screen exactly as it is displayed.

The results of all this are:

Deleting fields: If you delete a field from the native format file, then it will not be displayed when you retrieve records. The information in the field will, however, remain in the database until the next time you edit the record. Then Cardbox-Plus will store only what it displays, so the information will then be lost.

Adding fields: If you add a field to the native format file, then existing records will be displayed with this field blank, unless you edit them and put something in that field. With new records, you can put information in the field just as if it had always been there.

Altering field length: If you redefine a field to be longer, nothing unusual happens. If you make it shorter, then the information in the field will be shortened whenever a record is displayed, but this shortening will not affect the stored information unless you edit the record.

WARNING:

If 1. You entered data into a field defined as DISPLAY=[LINE]
and 2. You are now using a format file in which the field is *not* defined as DISPLAY=[LINE]
and 3. You write the cards out to a file using the WRITE command with MODE=[WS]

then the field will *not* be output as a set of separate items (see Appendix C), but as a *single* item, with spaces separating the lines of the field. If this is what you want to happen, fine: if not, just alter your format file to say DISPLAY=[LINE] for that field, and all will be well.

Using the database

To create a database, type the command

```
        d:CARDBOX database *
or      d:CARDBOX database.FIL *
```

(the space before the asterisk is important)

To use a database, type the command

```
        d:CARDBOX database
or      d:CARDBOX database.FIL
```

Replace 'd' by the drive letter of the device containing Portable Cardbox-Plus (for example, B:CARDBOX if it is in ROM slot B); replace 'database' by the name of the database you intend to create or use (for example, D:SALESMAN).

Whether you are creating or using a database, there must be a format file of the same name on the same device (e.g. A:SALESMAN.FMT if the database is A:SALESMAN.FIL), and the *current* drive must be a RAM disk or a floppy disk.

When you have created a database, Cardbox-Plus displays a blank card with the message "NO RECORDS SELECTED". You can then add records to the database using the commands described below.

When you start using an already existing database, Cardbox-Plus displays the first card in the database, and you can use any of the commands described below.

Entering commands

Cardbox-Plus lists the valid commands at the bottom of the screen (you will only see this list if you hit **HELP**):

```
Enter command: ■
SElect, INclude, EXclude; HIstory, BAck, CLear; KEep;
ADd, DUplicate, EDit, DElete; REad, WRite; FOrmat, PRint; QUit
LIST: ↑=1st ↓=last ←=back →=fwd ENTRY: ESC=erase
```

You only need to type the first two letters of a command: Cardbox-Plus will display the rest of the command name for you, and will then tell you what you can enter next.

The main selection commands, SELECT, EXCLUDE, and INCLUDE, all require an optional field name, a separator ("/", "\", or "="), and some text: Cardbox-Plus will prompt you for each part of the command as appropriate.

The KEEP command requires a name to be entered after it, and Cardbox-Plus will ask you for this.

The remaining commands do not require you to enter any extra information on the command line, so Cardbox-Plus just says "Now hit RETURN".

If you make a mistake in entering a command - for instance, entering an invalid two-letter command name, or a field name that does not exist - Cardbox-Plus will ring the PX-8's bell, display an explanatory error-message, and refuse to allow you to type any more. You can then use the normal editing keys such as Backspace or Escape to correct the error.

During command entry, Cardbox-Plus recognises the following keys for editing or correction:

BS - delete the previous character
^X, ESC - delete the entire entry

Selection

SELECT
EXCLUDE
INCLUDE

These commands all take the current selection and modify it by keeping only specified cards (SELECT), by rejecting specified cards (EXCLUDE), or by including specified extra cards (INCLUDE).

Selections are cumulative: so the second selection made acts on the result of the first, the third acts on the result of the second, and so on. Cardbox-Plus keeps track of the number of cumulative selections that have been made: this is called the "level number", and is displayed at the top of the screen along with the number of cards in

the current selection. Level 0 is the state where no selections have yet been made and the entire database is included in the current selection.

BACK

CLEAR

The BACK command undoes exactly one selection; the CLEAR command undoes them all at once, and returns you to level 0, where the entire database is in the current selection.

HISTORY

The HISTORY command shows you the last few cumulative selections you have made to get to the current level, and how many cards were found at each level:

```
        Now at level 4. File contains 52 records.
Level   1 - SELECT SX/M - 30 RECORDS SELECTED
Level   2 - SELECT BI\43:53 - 18 RECORDS SELECTED
Level   3 - SELECT IN\25000: - 5 RECORDS SELECTED
Level   4 - EXCLUDE PR\SOLICITOR - 4 RECORDS SELECTED
FUNCTION COMPLETED - Hit ESC to continue: ■
```

Selection by indexed words

SELECT field/word
EXCLUDE field/word
INCLUDE field/word

These commands look in a given field, if the 2-letter field name is specified, for a specified indexed word or words.

If you are looking for a particular key word, just type it in full and then hit RETURN. You can also use a question-mark within your word to match any single character, or a plus sign to match any sequence of zero or more characters: thus

SM?TH	will match SMITH and SMYTH
MICRO+	will match MICROCOMPUTER, MICROCOMPUTING, MICRO, etc.

You can use any number of "?" and "+" signs, and also combine them: so SM?TH+ will match SMYTHSON as well.

If you want to see what indexed words will meet your specification, hit ^**Q** after typing the specification but before hitting RETURN. Cardbox-Plus will search its index for all words that match your specification, and will display them. You can interrupt this process by hitting any key, or continue it onto futher pages of display by hitting ^**Q** yet again. You can then change your specification and try ^**Q** again, or hit RETURN to perform the actual selection.

Remember that ^**Q** only tells you what words are indexed: it does not tell you how many cards are indexed under a particular word, and the appearance of a word in a list does not necessarily mean that any cards in the *current* selection are indexed under it. Nevertheless, ^**Q** is a useful tool for exploring a database.

SELECT will keep only those cards in your current selection that are indexed under a word which matches your specification, and will reject the others.

EXCLUDE will reject those cards in your current selection that are indexed under a word which matches your specification, and will keep all the others.

INCLUDE will keep *all* the cards in your current selection, and will add any other cards that are indexed under a word which matches your specification.

Selection by indexed numbers and dates

SELECT field\specification
EXCLUDE field\specification
INCLUDE field\specification

These commands look in a given field, if the 2-letter field name is specified, for a specified indexed number or numbers.

A number specification in these selection commands can be one of the following:

number	matches the specified number only;
number1:number2	matches any number between 'number1' and 'number2', inclusive;
number:	matches any number greater than or equal to 'number';
:number	matches any number less than or equal to 'number'.

As with the indexed words, you can use **^Q** to find which indexed numbers will match your specification.

In specifications, Cardbox-Plus recognises positive or negative numbers, with or without a decimal point. The following are all valid numbers:

144 1.23 –3.6 .0013 100000 –.1

Dates can be used interchangeably with numbers. Here are some of the ways that the 21st of March 1956 can be written:

dd/m/yy	dd/mm/yy	m-dd-yy	yy.m.dd	yy.mm.dd
21/3/56	21/03/56	3-21-56	56.3.21	56.03.21

All of these would be indexed as the number 56.0321 (yy.mmdd).

Keeping the current selection

KEEP name

The KEEP command allows you to isolate the current selection and give it a name: rather like putting some cards in your pocket. You can, for instance, KEEP the current selection, return to an earlier level, make a new selection, and then use SELECT, INCLUDE, or EXCLUDE to combine this new selection with the selection you kept. Very complex queries can easily be handled in this way. Cardbox-Plus remembers kept selections until you return to the main menu.

The name can be up to 30 letters or numeric digits.

Combination with previous selections

SELECT = name
EXCLUDE = name
INCLUDE = name

These commands combine the current selection with a selection previously kept by means of the KEEP command.

SELECT will keep only the cards that occur in both selections.

EXCLUDE will keep only the cards that occur in the current selection but not in the one specified by 'name'.

INCLUDE will keep any cards that occur in either selection.

If you cannot remember exactly under what names you have saved the previous selections, then enter an ambiguous name, or even just a "+", followed by ^**Q** instead of RETURN. Cardbox-Plus will then list all matching names; backspace as necessary, type in the name you want in full, and then hit RETURN. If you actually try to use an ambiguous name involving "?" or "+", then Cardbox-Plus may

report an error. Your database will not be damaged, but the selection will not be done either - so always use an unambiguous name in this set of selection commands.

Scanning

You can scan through the current selection by using the following keys:

↑ Moves you to the first card.

↓ Moves you to the last card.

← Takes you back to the previous card.

→ Takes you forward to the next card.

Modification

ADD
DUPLICATE

These commands allow you to add a new card to the database. The ADD command displays a blank card for you to enter data, while the DUPLICATE command displays a fresh copy of the currently displayed card for you to edit: useful if you are entering many similar cards.

EDIT

The EDIT command allows you to alter an existing card.

DELETE

The DELETE command deletes the currently displayed card: see "Deletion", below.

Entering data

The ADD, DUPLICATE, and EDIT commands all start by displaying a card and positioning the cursor at the start of the first field in the card. The ADD command displays a blank card, indicating by symbols ► ◄ the fields for which the indexing mode is specified as AUTO or ALL.

Type the text for each field in UPPER- and lower-case, just as you want it to appear. You can use any special symbols you like.

If you mistype something, backspace over the mistake and then overtype it with the corrected text. Other ways of correcting or changing text exist, and are described under "Editing" below.

If you try to type past the end of the field, Cardbox-Plus will move the cursor outside the field and will ignore the surplus characters. If you have a field which spreads over more than one line, there is no need to do anything special at the end of the first line: Cardbox-Plus will automatically move you to the next line of the field. If you specified "DISPLAY=[WORD]" for this field when setting up the format file for the database, Cardbox-Plus will insert spaces to avoid splitting words between lines (these spaces are not actually stored in the database): otherwise you can do this by hand if you like.

Make sure that Cardbox-Plus knows under which words you want it to index the card. The way to do this is described in detail under "What Cardbox-Plus indexes", below, but essentially all you have to do is hit the **TAB** key (or **^I**) whenever you want to index or unindex a word. You can hit **TAB** just before typing the word, while typing it, or just after the word (before typing a space); or you can move the cursor onto the word later and then hit **TAB**. Indexed words are displayed with solid black arrows pointing to them from either side (indexed groups of words have these arrows pointing at the whole group rather than at individual words). You will occasionally see blank spaces (especially at the ends of fields) marked as if they were indexed: don't worry about this - they won't be indexed.

When you have finished entering text into a field, hitting the RETURN key will move you to the start of the next field in the card. If you are in the last field, hitting RETURN will take you back to the first one.

←	Move the cursor one character to the left
→	Move the cursor one character to the right
CTRL ↑	Move the cursor to the beginning of the field
CTRL ↓	Move the cursor to the end of the field
↑	Move the cursor one line up within the field
↓	Move the cursor one line down within the field
^B	Move the cursor to the start of the previous field (if DISPLAY=[LINE], move to the start of the last line of the previous field)
RETURN	Move the cursor to the start of the next field (if DISPLAY=[LINE], move to the start of the next line of the current field if there is one left)
INS	Turn insertion mode on or off. When insertion mode is on, any characters you type are inserted in front of the current cursor position; when it is off, what you type will overtype the text at the cursor position.
BS	If insertion mode is on, delete the character before the current cursor position; if insertion mode is off, move the cursor one place to the left.

DEL Delete the character presently at the cursor position and shift any following text one place to the left.

^N Insert a new line just after the character at the current cursor position but do not move the cursor. Applicable only to fields with **DISPLAY=[LINE]**.

CLR Erase all text from the cursor position to the end of the field.

TAB Index or unindex the word at the current cursor position.

ESC Exit

If you specified "DISPLAY=[LINE]" for a field when setting up the format file for the database, each line of the field is treated as if it were a separate field (useful for addresses etc), so hitting RETURN will take you to the next line of the field if there is one.

Editing

While you are adding or altering a card, Cardbox-Plus recognises the control keys listed above.

Storing

When you have finished entering or altering the card, hit the **ESC** key. Cardbox-Plus will ask

Hit S to store, E to edit, Q to abandon:

If you hit **E**, the cursor goes back to the first field in the card and you can carry on entering or editing text. (Usually you only use this if you hit **ESC** by mistake).

If you hit **Q**,

- for ADD or DUPLICATE, Cardbox-Plus throws away the card you have just typed;
- for EDIT, it leaves the card you were editing unchanged.

If you hit **S** (which is what you usually do), Cardbox-Plus says **WAIT** at the top of the screen, stores the card, says **INDEX**, and indexes the card under every word specified. This may take a few seconds with a large database.

The card you have added or changed is now part of the Cardbox-Plus database. It is not saved on the disk until after a few seconds have passed without your typing anything: then it is saved automatically.

When you enter a new card, it is usually stored after all those that are already in the database: but if the database has some gaps because other cards have been deleted then Cardbox-Plus will put the new card in one of them.

At level zero (ie. no current selections) Cardbox-Plus will always leave you at the card you added; at other levels, the new card is not part of the current selection, so it will disappear from the screen after being stored: but don't worry - it has not disappeared from the database!

What Cardbox-Plus indexes

Cardbox-Plus needs to know which words are to be indexed in each field. There are four possibilities, depending on the way the field was defined when the format file was set up:

INDEX=[NONE] – Nothing is indexed.

INDEX=[ALL] – Everything is indexed.

INDEX=[MAN] – Nothing is normally indexed, but you can change a word from unindexed to indexed (and back again) by hitting the **TAB** key when the cursor is on the word or immediately adjacent to it.

INDEX=[AUTO] – This works just like INDEX=[MAN], except that words start by being indexed and you can then change them from indexed to unindexed and back again by using the **TAB** key.

Indexed words are displayed with solid black arrows pointing to them from either side (indexed groups of words have these arrows pointing at the whole group rather than at individual words). You will occasionally see blank spaces (especially at the ends of fields) marked as if they were indexed: don't worry about this - they won't be indexed.

How Cardbox-Plus indexes

Cardbox-Plus first looks through the card, looking for words to be indexed. Only spaces can separate one word from another. For instance, if you have a piece of text which includes the words 'use of alpha/beta pruning', then 'alpha/beta' will be counted as a single word, not two words. If a word is more than 64 characters long Cardbox-Plus ignores characters after the 64th for indexing purposes.

Next, Cardbox-Plus looks at each word in turn, ignoring any dollar and sterling symbols. If the word begins with a numeric digit, a plus or minus sign, or a decimal point, then Cardbox-Plus treats it as a number; otherwise it treats it as an ordinary word. If for some reason you want to index a word starting with a numeric digit as an ordinary word rather than a number, you can stop Cardbox-Plus recognising it as a number by preceding it with a special character such as a slash ("/") or an apostrophe.

Indexing ordinary words

Cardbox-Plus looks at the word and "condenses" it as follows:

a-z..... replaced with capitals
(and accented letters)
A-Z.....kept
(and accented letters)
0-9..... kept
hyphen.....kept
others..... ignored

If the resulting condensed word is not hyphenated, Cardbox-Plus indexes it, cutting it short at 32 characters if it is longer than this.

If the condensed word is hyphenated, Cardbox-Plus indexes every part of it, then removes the hyphens and indexes the whole, cutting it short if necessary.

For example, take the following untrue sentence, with only the underlined words being indexed:

Cardbox-Plus uses *alpha/beta* pruning for *words & phrases*

Cardbox-Plus	becomes CARDBOX-PLUS	indexed as:	CARDBOX
		and:	PLUS
		and:	CARDBOXPLUS
alpha/beta	becomes ALPHABETA	indexed as:	ALPHABETA
words	becomes WORDS	indexed as:	WORDS
&	becomes (blank)	and is ignored	
phrases	becomes PHRASES	indexed as:	PHRASES

If you remember this (even vaguely) then you will not worry when what you thought were two words are indexed as one (like 'alpha/beta'), and you will also be able to use the hyphenation feature to index cards more meaningfully.

If you ever want to have a two-word phrase indexed as a single word (for instance, indexing REVERSE GEAR as REVERSEGEAR for easier retrieval), then you can either hyphenate it, in which case REVERSE-GEAR will be indexed as REVERSE and GEAR as well as REVERSEGEAR, or join the words together with almost any other non-alphanumeric character (the underline character is particularly useful here because it looks fairly unobtrusive when printed) - so that REVERSE GEAR will be indexed as REVERSEGEAR.

Indexing numbers and dates

Cardbox-Plus recognises positive or negative numbers, with or without a decimal point. It ignores commas and other non-numeric characters occurring within numbers. The following are all valid numbers:

144 1.23 –3.6 .0013 100,000 –.1

There are three formats for dates. Here are some of the ways that the 21st of March 1956 can be written:

dd/m/yy	dd/mm/yy	m-dd-yy	yy.m.dd	yy.mm.dd
21/3/56	21/03/56	3-21-56	56.3.21	56.03.21

All of these would be indexed as the number 56.0321 (yy.mmdd).

Deletion

DELETE

The DELETE command deletes and unindexes the card currently displayed. At level zero (no current selections) the next card in the database will be displayed; at any other level, the deleted card will be replaced by a marker saying "DELETED RECORD".

File handling

READ
WRITE
PRINT

The READ command allows you to transfer data to Cardbox-Plus from other programs. The WRITE command allows you to transfer data to other programs in a variety of formats and to make safety copies in a special internal dump format; and the PRINT command allows you to print out card images to a printer or to a file. Both the WRITE and PRINT commands allow you to output selected cards in a sequence of your choice.

Full details of the file formats used are in Appendix C.

READ

As well as entering cards from the keyboard, you can add them to the Cardbox-Plus database from a file stored on the computer. This allows you to transfer data to Cardbox-Plus from other programs and to rebuild the Cardbox-Plus database from safety copies. You could also use this facility to exchange information between different users: an abstracting service, for instance, could distribute data to its subscribers on disk or tape.

To add cards to the database from another file, use the READ command. The bottom of the screen will then display:

```
Enter command: READ FILE =*
Hit letter for option (F) or hit ESC:
```

The file to be read must be in the internal dump format (Appendix C), and the only option you need to set in this menu is the name of the file to be read: use the **F** key to set this. If you are not sure of the name of the file you want, you car enter an ambiguous filename (see the "General Information" chapter) and Cardbox-Plus will display a list of all the matching files. You can then hit **F** again and enter the appropriate name. When you have set the filename, hit **ESC** and then use **G** to read the file or **Q** to abandon the command.

While the READ command is executing, the status display at the top of the screen will change between WAIT and INDEX for each card loaded, just as if you were entering the cards by hand. You can interrupt the READ command at any time by pressing the **ESC** key, followed by **G** to continue the command (useful if you only wanted to see how far you had got) or **Q** to abandon it.

When the whole file has been loaded, Cardbox-Plus displays the message 'FUNCTION COMPLETED'. Hit **ESC** to acknowledge the message.

WRITE

The WRITE command takes the currently selected cards from the database and writes them to a file which can then be read by Cardbox-Plus or by other programs. The cards can be written in the sequence in which they appear in the database, or in alphabetical or numerical order of a particular field. The WRITE command works only on the cards you have currently selected, so it can be used at level 0 if you want the entire database to be written.

When you have entered the WRITE command, Cardbox-Plus will display the following options:

Enter command: WRITE OUTPUT-FILE =* NEW=[YES] BEGIN=[BEGINNING] MODE=[INTERNAL] SEQ=[NONE]

You can these options as follows:

O Output file – the name of the file to which Cardbox-Plus should write the data. If you are not sure what files there are on the destination disk, RAM drive, or tape, you can enter an ambiguous filename (see the "General Information" chapter) and Cardbox-Plus will display a list of all the matching files. You can then hit **O** again and enter the name of the file you really want.

N New – tells Cardbox-Plus whether the file already exists:
[YES] – the file does not already exist;
[NO] – the file already exists and should be overwritten.

If you specify NEW=[YES] for a file that already exists, or NEW=[NO] for one that does not, Cardbox-Plus will mark the filename with an asterisk and will refuse to perform the WRITE command until you have changed either NEW or the output filename.

B Begin:
[BEGINNING] – start output with the first card in the current selection;
[HERE] – start output with the card currently being displayed.

M Mode – defines the file format:
[INTERNAL] – a format which can be read by Cardbox-Plus;
[EXT,NO FLAG] – a format which can be read by Basic programs or word processors;
[EXT,FLAG] – similar, but with indexed words marked;
[WS] – a format which can be read by MailMerge and used to produce standard letters.

S Sequence - defines the sequence in which the cards should be output: see "Sequences", below.

When you have set these options, hit **ESC**, and then use **G** to perform the WRITE command, or **Q** to abandon it.

You can interrupt the WRITE command at any time by pressing the **ESC** key, followed by **G** to continue the command or **Q** to abandon it.

When the whole selection has been written, Cardbox-Plus displays the message 'FUNCTION COMPLETED'. Hit **ESC** to acknowledge the message.

Full details of the file formats used are given in appendix C.

PRINT

The PRINT command enables you to print the cards in the current selection in any format of your choice, or write them to a file which can then be read by Wordstar or other programs. The cards can be output in the sequence in which they appear in the database, or in alphabetical or numerical order of a particular field. The PRINT command works only on the cards you have currently selected, so it can be used at level 0 if you want the entire database to be printed.

When you have entered the command, the bottom of the screen will look like this:

Enter command: PRINT TO=[PRINTER]
BEGIN=[BEGINNING] MODE=[PAGE,CONTINUOUS] DRAW=[+] SEQ=[NONE]

You can set the following options:

T To -

[PRINTER] – Cardbox-Plus will print the cards on the printer;
[DISK] – Cardbox-Plus will write the cards to a file on disk, RAM-disk, or tape.

O Output file - the name of the file to which Cardbox-Plus should write the cards. This is only relevant if TO=[DISK]. If you are not sure what files there are on the destination disk, RAM drive, or tape, you can enter an ambiguous filename (see the "General Information" chapter) and Cardbox-Plus will display a list of all the matching files. You can then hit **O** again to enter the filename you actually want.

N New – tells Cardbox-Plus whether the file already exists:
[YES] – the file does not already exist;
[NO] – the file already exists and should be overwritten.

If you specify NEW=[YES] for a file that already exists, or NEW=[NO] for one that does not, Cardbox-Plus will mark the filename with an asterisk and will refuse to perform the PRINT command until you have changed either NEW or the output filename.

B Begin:
[BEGINNING] – start output with the first card in the current selection;
[HERE] – start output with the card currently being displayed.

M Mode – defines the print format:
[PAGE, CONTINUOUS] – the cards are printed without pausing, one to a page; [PAGE, SINGLE] – Cardbox-Plus will pause and wait for you to align the paper before printing each page; [UNFORMATTED] – Cardbox-Plus will ignore page divisions and will print the cards in continuous sequence.

D Draw – the character Cardbox-Plus will use to represent any lines in the form.

S Sequence – defines the sequence in which the cards should be output: see "Sequences", below.

The format in which the file is to be printed is mostly set in the 'Print format' section of the format file, but you can influence the way Cardbox-Plus prints cards by using the **D** and **M** options.

When you have set these options, hit **ESC** and then use **G** to perform the command, or **Q** to abandon it.

You can interrupt the PRINT command at any time by pressing the **ESC** key, followed by **G** to continue the command or **Q** to abandon it.

When the whole selection has been printed, Cardbox-Plus displays the message 'FUNCTION COMPLETED'. Hit **ESC** to acknowledge the message.

Sequences

The **SEQ** option applies to the WRITE and PRINT commands, and controls the order in which these commands will output the selected cards.

If SEQ=[NONE], the cards will be output in the order in which they occur in the database.

If SEQ=[fieldname/], the cards will be output in the order (alphabetical or numerical) of index words in the specified field. Output using SEQ=[fieldname/] is slower than output using SEQ=[NONE]

If there are several index words in a field on a particular card, Cardbox-Plus looks at the earliest one in sequence (words come before numbers and dates). Thus "SMITH, JONES" will be output with the Joneses and not the Smiths, and "WESTON-SMITH" (which Cardbox-Plus indexes under WESTON, SMITH, and WESTONSMITH) will be output with the Smiths rather than the Westons.

If several cards share the same index word, they are output in the order in which they occur in the database. Cards which have no index word in the specified field will be output after all the indexed cards.

Windows

FORMAT

Every database has details of its layout stored in a format file of the same name, so that **SALESMAN.FIL** has the format file **SALESMAN.FMT**. We call this format file the *native format* of the database.

The native format may be the only one you will ever need: but Cardbox-Plus does allow you to use other formats for special purposes. For instance, you may wish to display the information in the database in a different way, to print summaries of what is in the database, and so on. However, the native format remains important because it is the only one that allows you to add or amend information in your Cardbox-Plus file.

When you want to use different format files as 'windows' on your database (see "Using different format files" in the "General information" section of this manual), the FORMAT command enables you to select the format file to be used.

When you have entered the FORMAT command, the bottom of the screen will display:

```
Enter command: FORMAT FILE = *
Hit letter for option (F) or hit ESC:
```

The only option you need to set is the name of the format file to be read: use the **F** key to set this. Cardbox-Plus sets the file type to **.FMT** automatically. When you have set the filename, hit ESC and then use **G** to read the format file or **Q** to abandon the command.

There is then a short pause while Cardbox-Plus tries to read the format file. If it is successful, it displays the currently displayed database record in the new format. If it fails (because it cannot find the file or because there is something wrong with the file), Cardbox-Plus displays an error message and asks you to enter the filename again. The exception to this is if you enter a format file name that is the same as the name of the database file: in this case, if Cardbox-Plus cannot read the format file, it performs a QUIT command automatically.

If the format file you have selected is not the native one (that is, it does not have the same name as the database file), then Cardbox-Plus will not allow you to modify the database in any way. The flag "**R/O**" appears in the top right-hand corner of the screen to warn you of this.

Ending a session

QUIT

When you have finished using the database, enter the QUIT command to leave the program. This is essential if you have been changing the database in any way, and strongly advisable even if you have not. If you must switch the machine off in the middle of a session, remember to hold down the CTRL key while doing so, so that the program is preserved: otherwise you may have to repair the database.

Note that the PX-8's automatic power-off timer is enabled when you are using Cardbox-Plus.

SECURITY

(NB. For more details of using the tape, disks, etc, refer to the PX-8 User's Manual)

One day something will go wrong. You may switch off accidentally, a disk or tape may get contaminated, your batteries may fail, or you may change disks at the wrong time. It is important, therefore, to make regular copies of your database: after all, the time taken in making a safety copy is nothing compared to the time it would take you to re-enter an entire database by hand.

You should keep at least two safety copies of any really important data: that way you should be protected even if the copying process itself goes hopelessly wrong.

How you make safety copies depends on the equipment you have.

IF YOU DO NOT HAVE DISK DRIVES, you can copy files from your RAM-disk to tape using the PIP program.

IF YOU HAVE DISK DRIVES, you can copy files from one disk to another using PIP, or copy whole disks using the DISKCOPY program.

What files to copy

Let us assume that you have a database called 'SALESMAN'. You should keep safety copies of SALESMAN.FMT and SALESMAN.FIL.

SALESMAN.FMT defines the format of the database. A copy will only be out of date if you change the format in some way: ordinary database manipulations do not affect it.

SALESMAN.FIL holds the database itself. A copy will be out of date as soon as you add, edit, or delete records. You can decide for yourself when enough changes have been made to justify making a new safety copy.

If you want to save space (perhaps to make faster copies onto tape) then you can use the 'Use database' function's WRITE command to store the data in a compact form. Make sure you are at level 0, then enter the WRITE command, set the mode to [INTERNAL], and specify the file to which you want the data to be written - see the description of the WRITE command for full details. The disadvantages of the compact form of storage are (1) it takes longer to write and (2) it takes far longer to restore the database from this form: but it *is* much more compact. If you write to tape using this method, you must make sure that the tape mode is set to "Stop" first - see "Tape mode" in the PX-8 User's Manual for details.

Summary

When you are planning a database, plan the security as well. Decide what kind of safety copies you are going to make, how, and when. Write it all down, and keep writing down the safety copies you make and the disks or tapes they are on. When disaster strikes, there is nothing more frustrating than having three or four different copies of the database and not knowing which one to use.

Repairing the database

If something goes wrong while you are adding records to the database or editing it, the database will probably be damaged and

produce error messages when you try to use it. You can restore the database from the most recent safety copy, but you may (despite all our warnings) not have a recent safety copy at all. In this case, the 'Repair database' function can usually salvage those records that are still readable.

To use this function, type the command

d:CARDBOX database dumpfile

(the space between the filenames is important)

Replace 'd' by the drive letter of the device containing Portable Cardbox-Plus (for example, B:CARDBOX if it is in ROM slot B); replace 'database' by the name of the database you intend to create or use (for example, D:SALESMAN); and replace 'dumpfile' by the name of the file you want to receive the salvaged records - for example,

B:CARDBOX D:SALESMAN H:RESCUE.DMP

The file named in 'dumpfile' must not already exist: if it does, erase it before entering the CARDBOX command.

The 'Repair database' function extracts all the cards it can from the database and writes them out in Cardbox-Plus's normal internal dump format, from which the database can be rebuit: for details of the rebuilding process, see 'Compact copies' under Recovery below.

The Repair function scans through every slot in the database that may possibly hold a record, and displays a running commentary on its activities as follows:

100 slots scanned, 80 written, 17 empty, 3 invalid.

Slots scanned: how many slots have been read.

Slots written: how many slots contain valid data and have been written to the dump file.

Slots empty: how many slots are empty.

Slots invalid: how many slots contain damaged or invalid data.

Only counts which are non-zero actually appear on the screen.

At the end of the dump, the 'FUNCTION COMPLETED' message is displayed: hit **ESC** to acknowledge it.

You can interrupt the dumping process by hitting **ESC**. Follow this by **G** to continue dumping or **Q** to abandon it.

When you have completed dumping the file, you can rebuild the database: for details of the rebuilding process, see 'Compact copies' under Recovery below.

Recovery

If something has gone wrong, what you should do depends on how you made safety copies.

What files to restore

If you have a database called 'SALESMAN', then the two files you need to restore are the format file SALESMAN.FMT and the database file SALESMAN.FIL (SALESMAN.FMT may not always *need* restoring, but it's safer to restore it anyway if you can).

Restoring from direct copies

If you made safety copies of your data by copying files or disks, then erase the damaged file, and then copy the appropriate file back again, using the PIP command.

Restoring from compact copies

If you have made a compact copy (a dump) of the database using Cardbox-Plus's WRITE command, or if you have used the 'Repair database' function to write such a copy, then perform the following steps:

- Restore the format file if necessary.
- Erase the database file if you have not already done so.
- Use Cardbox-Plus's 'Create database' function to re-create the database file.
- Use the READ command to read the dump file. This could take from a few minutes to a few hours, depending on the size of the database.

The database is now restored.

(NOTE: If you originally wrote the dump file to tape in "Nonstop" mode, you will get "BDOS ERROR" messages when you try to read it using Cardbox-Plus. To get round this, use PIP to copy the dump file from the tape to the RAM-disk, set "Stop" mode, and copy the dump file onto the tape again: it should then be readable by Cardbox-Plus)

MESSAGES

Here is a list of the error-messages that Cardbox-Plus can produce and some of the less obvious prompts. The following abbreviations are used to indicate the functions to which the messages apply:

DB - use/create database
FF - edit/create format file
INI - starting Cardbox-Plus
REP - repair database

ALIGN PAPER, hit ESC:

(DB) – Insert the next page to be printed and then hit ESC.

BAD FILENAME

(INI) – You have specified an invalid or ambiguous filename in the CARDBOX command, or omitted the filename altogether: correct the command and re-enter it.

BAD 2ND FILENAME

(INI) – You have specified an invalid 2nd filename in the CARDBOX command: it should be "*" if you are creating a database or a format file, or an unambiguous filename (not of type **.FIL** or **.FMT**) if you are repairing a database.

BDOS ERR ON X: SELECT

The specified drive does not exist on your system.

BDOS ERR ON X: DISK R/O

You have changed disks at the wrong time.

BDOS ERR ON X: BAD SECTOR

There is something physically wrong with your disk or tape, or the contents of your RAM disk have been damaged in some way.

To return to the operating system, press ^C. The above three messages are issued by CP/M - consult your operating system manual for any other messages which start this way. Your database file may be damaged, so be prepared to restore it from a safety copy or repair it.

CANNOT ACCESS FORMAT FILE

(FF) – The format file you are trying to edit does not exist or is damaged in some way. Restore it from a backup copy.
(DB) – The format file you are trying to use does not exist, is damaged, or contains no valid fields.

CANNOT WRITE OUTPUT FILE

(All) – The disk directory or the disk is full.

DATABASE ACCESS ERROR

(DB) – The database file or the retrieval file is corrupt in some way, or the disk or directory is full. QUIT, free some additional space if necessary, and try the operation again. If the problem persists, repair the database.

DATABASE CAPACITY EXCEEDED

(DB) – You have more then 65,500 records in the database, or it occupies more than 16 megabytes.

DATABASE FILE NOT FOUND

(REP) – You have asked Cardbox-Plus to repair a non-existent database: correct the filename or the drive letter.

DELETED RECORD

(DB) – If the current record has been deleted, then this message, appears in its place.

DUPLICATE FIELD NAME

(FF) – You are trying to give a field the same name as another field. Cardbox-Plus will reject the command.

ERROR-see under the text of the message.

FILE CORRUPT: CODE=nn

(DB) – the database file is corrupt in some way. Repair it at the earliest opportunity. In case you are interested, here is a list of codes and their meanings:

2 error opening/closing file)
3 error reading/writing file)
100 error opening file) Errors caused by invalid pointers
101 error creating file) within a database or by a full disk.
102 error closing file)
103 error reading file)
104 error writing file)

7 record not found
8 bad record format
9 deleted slot
10 incompatible file format
11 invalid slot number
12 slot table full
13 max. file size exceeded
14 end of stream on input
17 index entry not found
18 duplicate index entry
21 bad index format

<== FORMAT ERROR

(DB) – You have typed a command in an invalid format (for instance, a selection command without a slash or other field delimiter). Correct the command by backspacing, or cancel it by hitting ESC.

FUNCTION COMPLETED

The function or command you asked Cardbox-Plus to perform has been completed.

Hit G to continue, Q to interrupt

(DB,REP) – You have pressed the ESC key to interrupt a long-running function. Hit **G** to continue the function or **Q** to halt it.

Hit ESC to continue:

When you have read the message displayed, hit ESC to acknowledge it.

Hit letter for option (A,B,C) or hit ESC:

If you want to change an option, hit its initial letter: otherwise hit ESC to perform or cancel the function.

<== INVALID COMMAND

(DB) – You have typed an invalid command name. Correct it by backspacing or cancel the entire command by hitting ESC. A list of valid commands is displayed just below the command line, and can be seen by hitting the HELP key.

<== INVALID FIELD NAME

(DB) – You have typed an invalid field name. Correct it by backspacing or cancel the entire command by hitting ESC. A list of valid fields is displayed just below the command line, and can be seen by hitting the HELP key.

<== INVALID NUMBER

(DB) – You have typed an invalid number or date in a selection command. Correct it by backspacing or cancel the entire command by hitting ESC.

NO RECORD DISPLAYED

(DB) – You are trying to duplicate, edit, or delete a record, but Cardbox-Plus is not displaying a record on the screen, or has not finished displaying one.

NO RECORDS SELECTED

(DB) – This status display appears when the current selection has no records in it: either because there are no records in the database or because no records match the selection criteria you have used.

NOT ALLOWED, FILE IS READ-ONLY

(DB) – Either the database file is read-only, or you are using a format file other than the native one: and Cardbox-Plus will not allow you to alter the database, only retrieve information. This message appears if you try to alter the database.

NOT ENOUGH MEMORY

(INI) – Cardbox-Plus needs a 48K CP/M system or equivalent, and there appears to be less memory than this: perhaps you have allocated too much space to a RAM disk, or some other program has reserved some memory for its own purposes. After displaying this message Cardbox-Plus returns you to the operating system.

(Options marked "*" are invalid)

(DB) – You have either omitted to specify an option (eg. a filename) or you have specified an invalid option or combination of options: for instance you may have described an output file as "NEW" when it already exists. Cardbox-Plus will not allow you to perform the command or function until the invalid options have been corrected.

OUTPUT FILE EXISTS

(REP) – The output file you have specified already exists: erase it and try the command again.

RETRIEVAL ERROR

(DB) – The retrieval file is corrupt in some way, or there is not enough space left for the retrieval file on the current disk or directory. QUIT, free some additional space, and try the operation again.

TOO MANY LEVELS OF SELECTION

(DB) – You have tried to go beyond level 99 while performing selections, and Cardbox-Plus does not allow this. If you need to get round this restriction, use a sequence such as:

KEEP = COMPLEX
CLEAR
SELECT = COMPLEX

to return you to level 1 with the same set of cards you have at present.

APPENDIX A: INSTALLATION

In order to install your Portable Cardbox-Plus ROM you will need to switch off your PX-8 and turn it over. On the bottom of the PX-8 there is a panel which lifts off to reveal the ROM compartment.

There are two ROM sockets side by side. Remove either of the ROMs installed and replace with your Portable Cardbox-Plus ROM. There is a section in your PX-8 User Manual concerning ROM removal and insertion. **This can be found on pages 4-15 to 4-18.**

Please read your User Manual before attempting to remove any installed ROMs, since they may be damaged if you do not follow the correct procedures carefully.

Take your ROM capsule and hold it so that the plastic tab with two holes is towards the back of the PX-8. Then place the carrier over the ROM socket so that it sits loosely in the socket.

The carrier and socket are made like a key and a lock. It is only possible to fit the carrier into the socket the correct way.

Once positioned correctly, push the ROM and the plastic carrier so that they fit level with the top of the socket. Use two fingers, one at the top and one at the bottom, to ensure an even pressure.

Lastly, return the plastic cover to the ROM compartment and switch on your PX-8. If you have your Menu configured correctly the **CARDBOX.COM** should appear on the Menu.

The system menu

With the PX-8's automatic menu facility, it is possible to arrange for all **.FIL** and **.FMT** files to be displayed on the menu screen, and to run Portable Cardbox-Plus automatically when one of these files is selected, just as BASIC is run automatically if you select a BASIC program.

This is explained in pages 2-37 to 2-42 of the PX-8 User Manual.

APPENDIX B:DESIGNING A CARDBOX-PLUS DATABASE

Here are some of the things you should take into account when designing your Cardbox-Plus database. You won't come to any harm if you ignore them all, but the database you design will be better and more useful if you plan it well.

Before designing your first database format, you may find it useful to see the exact format used for the sample database that was delivered with Cardbox-Plus. To do this, select the "Edit format file" function, and use the **L** command to print out the entire format on the printer.

Classifying fields

First of all divide fields into those that:

identify;
remind;
describe;
sequence;
and inform.

Fields that **identify** are those used when you know what you are looking for: things like serial numbers and, to a lesser extent, names. They should be short, but indexed well, so that you can quickly find the exact record you want.

Fields that **remind** are also used when you know what you're looking for, but this time you can't quite remember what it was. The title of a book probably works a bit like this, or the street address of a company. Fields like this are useful, but don't swamp the index with them.

Fields that **describe** are used when you want to find all the records of a particular kind, whether hang-gliding accountants or books on mathematical analysis. These are the really important searches, and so the fields need to be indexed very well indeed, and can be as long as you like. How many fields like this you have depends on the breadth of coverage of your database. Consider having at least two descriptive fields: one for a class of things and one for kinds of things within a class – industry area and interest, for instance.

Fields that **sequence** are used to control the order in which records are output to the printer or to other programs. If you don't mind what order records are output in, you don't need any sequence fields, and sometimes other fields can be used as sequence fields as well (for instance, the "city name" part of an address). Before you decide on a sequence field, look at the "Sequences" section of the main manual.

Fields that **inform** are the reason you use Cardbox-Plus. They are simply those that contain the information you are looking for. In practice, any of the kinds of fields listed above could be information fields too, if you didn't know what they said, but some fields are pure information fields, such as the date a book is published, or a customer's telephone number, or 'Comments' field.

Questions

What Cardbox-Plus needs to know	Questions you should ask yourself
1. What information do you want to store?	Who puts it in?
2. How do you organise the information into fields?	Who retrieves it?
3. How is each field indexed?	What questions will be asked?

1. When you are deciding what information to store in your Cardbox-Plus database, don't just think of what it would be nice to have: think of the capabilities of whoever is putting it in. It could be very useful to have a brief abstract of every magazine article you index, for example, but remember that you may not be the person adding the information. Will everyone who may happen to have an article to index know enough to write a useful abstract? You may know exactly what sort of thing to put in, but does everyone else?

2. The main thing about organising information into fields is to make sure that the record can be read easily by whoever uses it. A clear layout is important, and it is especially worth designing the database so that you can have meaningful 'windows' on the database to present selected information, not only on the screen but on paper as well.

3. The other thing about organising information into fields is the indexing: different kinds of information need indexing in different ways. Before deciding how a particular field is to be indexed, think carefully about the way it will be used. Think of the questions that might be asked, and think about what you have to index to answer those questions.

Notes on layout

A field in the database file takes up only as much disk space as is required to hold the characters you have actually typed into it: so you can make the field space on the screen as large as you like without any effect on the size of the database file. Be generous with space, but remember that there may be occasions where you should spread an item of information over two or more fields.

One such a case is the name and address. If you put the whole thing into one field and specify DISPLAY=[LINE], then it will be treated as a single set of one-line fields for text entry, display and printing: but it will also be treated as one field for indexing. Consequently, if

you wanted to find someone called London, you would also get the records of all people living in London. To avoid such confusion, it would be better to have one field for the name and another for the address.

If you want to do more sophisticated searches, you can take this principle further and allocate separate fields for town, county, postcode and the rest of the address. But remember also that you can enter both text and numbers or dates in the same field, and can thus make two separate searches, one alphabetic and one numeric, all on the same field.

Another time when it is useful to split information into two fields arises with numeric ranges. Suppose you want to associate a range of values with each record - for example, "22 to 26" - and be able to ask questions such as "What cards include 24 in their range?". The obvious way, entering "22:26" in a field, will not work, because Cardbox-Plus understands colons only when searching, not when indexing, and will thus treat "22:26" as "2226", which is not what is meant at all. Two possible ways out are:

- Just list every value in the range: in this case, put "22 23 24 25 26" in the field. Then, to find the cards which include 24 in their range, just SELECT the value 24. This works well for short ranges, but doesn't work at all if you have a wide range of values, or (worse) if fractional values are involved. You can hardly enter a list "22.00 22.01 22.02 ..."

- Have two fields, one for the start of the range and one for the end: let's assume they are called RS and RE respectively. In this case, put 22 in RS and 26 in RE. To find the cards that include 24 in their range,

```
                SELECT RS\:24   (ranges which start at 24 or below)
  then          SELECT RE\24:   (ranges which end at or above 24).
```

As a bonus, you can ask questions such as "What cards include a value between 20.3 and 22.9 in their ranges?":

```
                SELECT RS\:22.9
  then          SELECT RS\20.3:
```

These two examples illustrate how it can be useful to think ahead to how records will be retrieved when designing the layout of the card.

When you have decided on the fields, their layout, and their indexing, you have done almost all the design you need: all that is left is to make sure that the print format looks vaguely sensible.

While you are building a database, it is well worth having an extra format file which gives a summary of the record in one or two lines, with some fields possibly shortened or omitted, and with captions left out or perhaps defined as text and not as a part of the relevant fields. Then you can print out a regular summary of what is in the database: and if you print it in, say, name order, then it will help you to weed out any duplicate entries.

If all this makes designing a database sound horribly complicated, start with a simple layout; you can always change the fields and elaborate the design later, without having to re-enter the data. But do make a point of entering the first few records yourself, even if someone else is going to put them in normally. In this way, you will be able to experiment with retrieval as well and make sure that you will get most out of Cardbox-Plus.

APPENDIX C: TALKING TO OTHER PROGRAMS

You can use Cardbox-Plus to read files prepared by other programs in a special internal dump format, and to write files in a variety of formats which can be read by other programs.

Internal dump format

The internal dump format is the only one which Cardbox-Plus can read and use to build databases. Cardbox-Plus can write files in this format with the WRITE command of the 'Use/create database' function, or with the 'Repair database' function. It can read files in this format with the READ command of the 'Use/create database' function.

THE FILE consists of a sequence of records, followed by a zero byte.

A RECORD consists of a sequence of fields, followed by a zero byte. Only non-empty fields are written.

A FIELD consists of a field identifying code (01 to 1A hex, corresponding to field identifying letters A to Z), followed by the text of the field, followed by a zero byte.

THE TEXT is in ASCII. The RUBOUT character (7F hex) is used to separate the lines of a DISPLAY=[LINE] field. The top (parity) bit of each character is used as a flag for indexing: it is normally 0, but is set to 1 for every character in an indexed word.

Thus the file will always have three zero bytes at the end: one to terminate the last field, one to terminate the last record, and one to terminate the file.

For example, an internal dump file of the first two records of an example database could look like this (hex codes in parentheses, characters with top bit set underlined):

(01)Mrs Andrew *Quest,*(00)(02)Imogen,(00)(03)12 Cranleigh Place,(7F)*Egham,*(00)(05)*Surrey*(00)(07)0784 55857(00)(09)*8/4/44*(00)(0B)*F*(00)(0D)*M*(00)(11)*11,500*(00)(13)*Actress*(00)(15)*27/4/82*(00)(00)(01)Dr J.B. *Harney,*(00)(02)Dr Harney,(00)(03)Woodfield Cottage,(7F)Churchland Lane,(7F)*Slaidburn,*(00)(05)*Lancashire*(00)(07)02006 42571(00)(09)*2/11/43*(00)(0B)*M*(00)(0D)*M*(00)(0F)*1*(00)(11)*35,000(00)(13)Doctor*(00)(15)*2/1/83*(00)(17)*5/83*(00)(19)Expecting another child shortly. Could be interested in school fees plans.(00)(00)(00)

On input, Cardbox-Plus will accept a word as being indexed provided at least one character in the word, or the character immediately preceding the word, has its top bit set. Moreover, if the same field occurs several times in a record, Cardbox-Plus will take the occurrences of the field as being lines from a single DISPLAY=[LINE] field. These features make it easier for some programs to generate Cardbox-Plus internal format dump files.

External dump format

The external dump format is easier for most programs to read. There are two variants of this format: 'FLAG' marks indexed words for programs which need this information, while 'NO FLAG' omits the index markers for those programs that do not need or cannot handle them. Cardbox-Plus can write files in external format with the WRITE command of the 'Use database' function, but it cannot read them.

THE FILE consists of a sequence of records, followed by a blank line and one or more SUB (^Z) characters.

A RECORD consists of a sequence of fields, followed by a blank line.

A FIELD consists of a field identifying letter, a colon ':', and the text of the field, all in one line. Each field is on a line of its own, and empty fields are not written. Successive lines of a DISPLAY=[LINE] field are output one to a line, with only the first line having a field identifying letter (the rest have a space instead).

THE TEXT is in ASCII. If MODE=[EXT,FLAG], the top (parity) bit of each character is used as a flag for indexing: it is normally 0, but is set to 1 for every character in an indexed word. If MODE=[EXT, NO FLAG], the top bit is always 0.

For example, an external dump file for the same two records would look like this:

```
A : Mrs Andrew Quest,
B : Imogen,
C : 12 Cranleigh Place,
  : Egham,
E : Surrey
G : 0784 55857
I : 8/4/44
K : F
M : M
Q : 11,500
S : Actress
U : 27/4/82

A : Dr J.B. Harney,
B : Dr Harney,
C : Woodfield Cottage,
  : Churchland Lane
```

: Slaidburn,
E : Lancashire
G : 0200642571
I : 2/11/43
K : M
M : M
O : 1
Q : 35,000
S : Doctor
U : 2/1/83
W : 5/83
Y : Expecting another child shortly.
Could be interested in school fees plans.

WS format

Cardbox-Plus can write files in WS format with the WRITE command of the 'Use database' function, but it cannot read them.

THE FILE consists of a sequence of records, one to a line, followed by one or more SUB (^Z) characters.

A RECORD consists of a sequence of fields, separated by commas.

A FIELD consists of the text of a field, surrounded by double quotes ("). Fields with DISPLAY=[LINE] are treated as if each line were a separate field. Empty fields and empty lines of DISPLAY=[LINE] fields are both written, so that the number of items on each line is the same.

THE TEXT is in ASCII, and the top bit is not set. Double quotes within the text are replaced by single quotes.

For example, a WS dump file for the same two records would look like this (we have split the lines to make them fit on the paper).

"Mrs Andrew Quest,","Imogen,","12 Cranleigh Place,","Egham,",
"","Surrey","0784 55857","8/4/44","F","M","","11,500","Actres
.....s","27/4/82","",""
"Dr J.B. Harney,","Dr Harney,","Woodfield Cottage,","Churchla
.....nd Lane,","Slaidburn,","Lancashire","02006 42571","2/11/
.....43","M","M","1","35,000","Doctor","2/1/83","5/83","Expec
.....ting another child shortly. Could be interested in schoo
.....l fees plans."

A suitable Mailmerge file for the above text would look like this:

.df SAMPLE.DMP or whatever the dump file is called
.rv na,de,addr1,addr2,addr3,co,tel,bi,sx,ma,ch,in,pr,lc,nc,no
..read as many items as there are in the dump file
29th March, 1983.

&na&
&addr1&
&addr2/o&
&addr3/o&
&co&

Dear &de&,

A new insurance policy has recently come onto the market and may be of interest...

Yours sincerely,

James P. Smith.
.pa start a new page for the next letter
.rp and then repeat this file for the next set of data values

WARNING:

If 1. You entered data into a field defined as DISPLAY=[LINE]
and 2. You are now using a format file in which the field is *not* defined as DISPLAY=[LINE]
and 3. You write the cards out to a file using the WRITE command with MODE=[WS]

then the field will *not* be output as a set of separate items, but as a *single* item, with spaces separating the lines of the field. If this is what you want to happen, fine: if not, just alter your format file to say DISPLAY=[LINE] for that field, and all will be well.

Print format

You can also write records to a file in exactly the form in which they appear on the screen by using the PRINT command of the 'Use database' function. By using different format files, you can produce files in any format you like, and also read and process such files directly by Wordstar.

APPENDIX D: WHAT TO DO IF SOMETHING GOES WRONG

If something unusual happens, see if Cardbox-Plus is still in control: if so, then its messages (especially those near the cursor) should tell you what is going on. If necessary, look up the messages in the manual, and think carefully what to do next. Nothing worse will happen in the meantime.

If you get a Cardbox-Plus error message, LOOK IT UP in the "Error messages" section of the manual.

If you get a BDOS ERROR message, look it up as well: however, the error will have caused you to leave Cardbox-Plus without any of the normal procedures (QUIT, etc) being performed, and the database file may therefore be damaged: see "Premature exit" below.

If the computer just halts and refuses to respond, the most likely cause is something wrong with the hardware. If you were using a database, it may be damaged: see "Premature exit" below.

Hardware versus software

If errors happen at random, irrespective of what you are doing, suspect the hardware.

If errors happen only when you do certain things, and you can make an error happen again by reproducing the exact circumstances that led up to it, then the software or the data file should be suspected. Try dumping the file using the Repair Database function, rebuild the file, and then try the same sequence of commands again.

Premature exit

If you leave Cardbox-Plus prematurely (ie. without using the QUIT command) for any reason, the effects depend on a number of factors:

- If you were using any function other than "Use database" or "Create database", everything is probably all right.

- If you were using a database for retrieval only (no ADD, DUPLICATE, EDIT, DELETE, or READ commands), the database is probably all right.

- If enough time has elapsed since you last modified the database (say 15 seconds), then the database is probably all right.

- If the above conditions do *not* hold, then the database is probably damaged. Be prepared for error messages when using it again, and, if these occur, then use the Repair function to repair the database.

E. DIFFERENCES BETWEEN PORTABLE CARDBOX-PLUS AND THE FULL VERSION

The full version of Cardbox-Plus is available for 8-bit and 16-bit machines running under CP/M, MS-DOS, MP/M, Turbodos, including the Epson QX-10 desktop computer. It has the following additional facilities:

Menu

- in the full version all functions are available from a single menu, without any need to leave Cardbox-Plus and reload programs between operations. This also includes utilities for copying and deleting files.

Larger records

- full Cardbox-Plus allows 132-column wide cards: sideways scrolling is provided where the screen display is narrower;
- up to 80 lines of free text can be attached to each card: notes, explanations, even letters. This extra text is not available for searching, but can be printed out either on its own or in conjunction with selected fields from the cards.

Summary displays

- several records at a time can optionally be displayed on the screen, as many as the depth of the format will allow.

Selections

- full Cardbox-Plus allows searches on alphabetic as well as numeric ranges;
- searches can be made on unindexed as well as indexed words;
- individual cards can be marked or "tagged" by hand to be included or excluded in selections.

Sorting

- records can be sorted on line, and multi-field sorting is available.

Batch update

- whole selections of records can be updated by a string of editing commands applied to the first card of the selection.

Merging

- templates can be designed for standard letters and reports, and printed with data on the cards without leaving Cardbox-Plus.

Bulk loader

- the bulk loader function allows files to be loaded 10 times faster than by the Read command.

Multi-user

- multiple users can share a Cardbox-Plus database, with record and file locking provided automatically. Networking versions are also available.

Limits

- the limit of 65,500 cards still applies, but full Cardbox-Plus supports databases of practically unlimited size.

APPENDIX F: INSIDE PORTABLE CARDBOX-PLUS

This appendix tells you something about the internal workings of Cardbox-Plus, and shows you why Cardbox-Plus does things the way it does. It also tells you how to estimate the space needed for a database.

Database format

The main database file is organised as a series of up to 65,500 'slots', each of which can hold one card. Cards are always retrieved in order of slot number, and the slots belonging to deleted cards can later be re-used. This is why cards you add are not necessarily put at the end of the database.

When you select cards, Cardbox-Plus keeps a record of their slot numbers. Thus a card deleted above level 0 is replaced by a "DELETED RECORD" marker rather than disappearing altogether, because the slot number is still listed, and new cards disappear because their slot numbers are not in the selected list.

Space allocation

Cardbox-Plus stores the database on a single file, and allocates new blocks to it as necessary. It does not release blocks that it no longer needs, but instead keeps them until it needs them again.

If Cardbox-Plus is used only for retrieval from a file, the file is not written to: so it is possible to use Cardbox-Plus on 'read-only' files or disks.

You can estimate the space used by a Cardbox-Plus database as follows:

For each distinct index word, count 5 plus its length.
(note that the same word in two different fields counts as two words).

For each occurrence of an index word in a card, count 2.

For each card, count the total number of characters in the card and add 2 for each field used, and 3 for the card.

This gives an estimate of the storage needed by the database, in bytes. The actual space needed depends on the efficiency with which Cardbox-Plus has managed to pack the data into the operating system's 128-byte blocks. A typical database has an efficiency of over 80, although the worst possible efficiency is theoretically 50. If you assume 78, the calculation becomes quite simple:

No. of 128-byte blocks = (no. of bytes)/100

APPENDIX G: APPLICATION NOTES

– Using Portable Cardbox-Plus.

Ideas For Use

Portable Cardbox-Plus may be used in a variety of applications in conjunction with the PX-8. Portable data capture may be carried out anywhere and the information held in the PX-8 reviewed at any time.

Sales Personnel

The sales executive may store customer information, visit reports and orders on his PX-8 (see Appendix H). This may also take the form of any prospects encountered. If a desktop system is used at the Area office, the sales executive can generate an extract from his database and transmit the extract file to the office. The extract could take the form :

All orders for the day
All visit reports for the day
All customers who buy a certain product on special offer
All customers who do not buy a certain product
All customers who buy below a certain turnover level
All customer addresses in label format
All customers/prospects in WordStar Mailmerge format
All prospects

– this extract file may then be transmitted back to the area or head office for either the Sales Manager to review or a secretary to generate the letters and labels for a mailshot using WordStar and MailMerge.

If the office computer is an Epson QX-10 then FILINK may be used to transmit the files in either direction in an exceptionally simple and secure manner.

Cardbox-Plus may be used on the office microcomputer to further manipulate the data or to be incorporated into a large database resident on a hard disk.

The PX-8 may be converted to a highly efficient telephone directory containing certain limited customer information such as credit blacklists etc. This use of PC+ and the PX-8 can increase a sales executive's efficiency significantly.

Price lists can be downloaded to the PX-8 and used by PC+.

APPENDIX H: SOME EXAMPLE FORMATS FOR PC+

The example used in this Appendix is that of a Salesman system who may wish to hold certain information on the PX-8 concerning customers, Visit reports and orders taken during the day.

The following formats consist of the following :

SALESMAN.FMT

The native format of the database and the format used when entering or deleting data to the **SALESMAN.FIL** data file.

This gives the customer information on the first "Slice" of the screen, giving products purchased and customer details.

The second slice, made visible by pressing **PF2**, concerns the visit report which highlights any important information for the sales manager and which may be extracted for onward transmission using a different format.

The third slice, displayed using **PF3**, concerns the order.

SALESTEL.FMT

This format displays a summary of the whole SALESMAN.FIL datafile as a type of telephone directory, giving a resume of the customer. Searches may be made in the file just as with the native format. The file is now READ ONLY, and may not be updated unless using the SALESMAN.FMT format.

WSOUT.FMT

This format writes the interesting details out as a WordStar Mail-merge format file, concerning the visit report and any order details, together with the name of the salesman and his sales area. It is also titled as an electronic mail message for the attention of the sales manager at Head Office.

This data could equally be in Cardbox-Plus internal format and be easily read by Cardbox-Plus at Head Office on a larger microcomputer to build a database for the sales force under a particular sales manager. This provides the Management with statistiics concerning the sales force but also orders and salesman's requests may be processed at Head Office without the usual postal delay.

LABELOUT.FMT

This format outputs the details in label format from the full database or an extract which has been searched for. The extract could be a list of all prospective customers for a mailshot, or a list of the customers who do not buy very much of a certain product which is subject to a special offer and who may purchase if informed of the offer. This file may be used to print labels or to generate the mailshot if output in Wordstar MailMerge format for the Word Processor available from MicroPro.

Sample Printouts

Next, some sample printouts are shown from the example database. The first examples are printed using the PRint option. The labels are output using the WRite command. This may then be used in conjunction with a simple BASIC program or printed using WordStar on a disk based computer.

SALESMAN.FMT.

```
 CARDBOX-Plus File   SALESMAN.FMT LIST FILE

Company  AAAAAAAAAAAAAAAAAAAAAA ***********************************************
Add 1  BBBBBBBBBBBBBBBBBBBBBBB *Contact : HHHHHHHHHHHHHHHHH Pos: IIIIIIIIII *
2  CCCCCCCCCCCCCCCCCCCCCCCCCCC *Business: JJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJ *
3  DDDDDDDDDDDDDDDDDDDDDDDDDDD *Area: KK  Month £ LLLLL Class M Visit NNNNNN *
4  EEEEEEEEEEEEEEEEEEEEEEEEEEE *Products:1 O  2 P  3 Q  4 R  5 S  Y Yes N No *
Tel No: FFFFFFFFFFF Tlx : GGGGG ***********************************************
Visit Report  Date  TTTTTTTTT  Time  UUUUUU      Order ?  VVVVVVVVVVVVVVVVVVV
Comments: WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
          WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
Contact:  XXXXXXXXXXXXXXXXXXXXXXXXX
Action Required: YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
                 YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
Orders Taken
Prod code  Col  Size  Qty  Price   Spec Disc   Comments
 ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ
 ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ
 ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ

Fields: A=CO B=A1 C=A2 D=A3 E=A4 F=TN G=TX H=CN I=PO J=BT K=AR L=MO M=CL N=LV
O=P1 Q=P3 R=P4 S=P5 T=DA U=TI V=OR W=GC X=PS Y=PR Z=OT

«A» NAME=CO/ INDEX= MAN DISPLAY= STD. CAPTION=""
START = ROW=03 COL=09 END = ROW=03 COL=33 LENGTH = 23

«B» NAME=A1/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=04 COL=07 END = ROW=04 COL=33 LENGTH = 25

«C» NAME=A2/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=05 COL=03 END = ROW=05 COL=33 LENGTH = 29

«D» NAME=A3/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=03 END = ROW=06 COL=33 LENGTH = 29

«E» NAME=A4/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=07 COL=03 END = ROW=07 COL=33 LENGTH = 29

«F» NAME=TN/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=08 COL=08 END = ROW=08 COL=21 LENGTH = 12

«G» NAME=TX/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=08 COL=07 END = ROW=08 COL=33 LENGTH =  5

«H» NAME=CN/ INDEX= MAN DISPLAY= STD. CAPTION=""
START = ROW=04 COL=44 END = ROW=04 COL=62 LENGTH = 17

«I» NAME=PO/ INDEX= NONE DISPLAY= STD.CAPTION=""
START = ROW=04 COL=67 END = ROW=04 COL=79 LENGTH = 11
```

```
«J» NAME=BT/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=05 COL=44 END = ROW=05 COL=79 LENGTH = 34

«K» NAME=AR/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=06 COL=40 END = ROW=06 COL=43 LENGTH =  2

«L» NAME=MO/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=52 END = ROW=06 COL=58 LENGTH =  5

«M» NAME=CL/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=06 COL=64 END = ROW=06 COL=66 LENGTH =  1

«N» NAME=LV/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=06 COL=72 END = ROW=06 COL=79 LENGTH =  6

«O» NAME=P1/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=07 COL=45 END = ROW=07 COL=47 LENGTH =  1

«P» NAME=P2/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=07 COL=50 END = ROW=07 COL=52 LENGTH =  1

«Q» NAME=P3/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=07 COL=55 END = ROW=07 COL=57 LENGTH =  1

«R» NAME=P4/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=07 COL=60 END = ROW=07 COL=62 LENGTH =  1

«S» NAME=P5/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=07 COL=65 END = ROW=07 COL=67 LENGTH =  1

«T» NAME=DA/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=09 COL=20 END = ROW=09 COL=30 LENGTH =  9

«U» NAME=TI/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=09 COL=37 END = ROW=09 COL=44LENGTH =  6

«V» NAME=OR/ INDEX= AUTO DISPLAY= STD. CAPTION=""
START = ROW=09 COL=58 END = ROW=09 COL=80 LENGTH = 21

«W» NAME=GC/ INDEX= NONE DISPLAY= WORD CAPTION=""
START = ROW=10 COL=10 END = ROW=11 COL=80 LENGTH = 138

«X» NAME=PS/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=12 COL=10 END = ROW=12 COL=39 LENGTH = 28
```

```
«Y» NAME=PR/ INDEX= NONE DISPLAY= WORD CAPTION=""
START = ROW=13 COL=17 END = ROW=14 COL=80 LENGTH = 124

«Z» NAME=OT/ INDEX= NONE DISPLAY= WORD CAPTION=""
START = ROW=18 COL=01 END = ROW=20 COL=80 LENGTH = 234
```

PRINT

```
Each entry takes 18 lines and 80 columns.
    PAGE-SIZE = 66                  TOP-MARGIN = 2
    NEXT-PAGE = FORM FEED           LEFT-MARGIN = 0
    ENTRIES-PER-PAGE = 2
    BLANK-LINES-BETWEEN-ENTRIES = 2
```

SALESTEL.FMT.

```
CARDBOX-Plus    File    SALESTEL.FMT        LIST FILE
Company  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  Con  HHHHHHHHHHHHHHHHHHHHHHHHHH Tel  FFFFFFFFFFFF
Business JJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJ Area  KKK MO £ LLLLLLLLLLLL
```

Fields: A=CO H=CN F=TN J=BT K=AR L=MO

«A» NAME=CO/ INDEX= AUTO DISPLAY= STD. CAPTION="Company"
START = ROW=03 COL=01 END = ROW=03 COL=34 LENGTH = 24

«F» NAME=TN/ INDEX= NONE DISPLAY= STD. CAPTION="Tel"
START = ROW=03 COL=63 END = ROW=03 COL=80 LENGTH = 12

«H» NAME=CN/ INDEX= NONE DISPLAY= STD. CAPTION="Con"
START = ROW=03 COL=36 END = ROW=03 COL=62 LENGTH = 21

«J» NAME=BT/ INDEX= NONE DISPLAY= STD. CAPTION="Business"
START = ROW=04 COL=01 END = ROW=04 COL=52 LENGTH = 42

«K» NAME=AR/ INDEX= NONE DISPLAY= STD. CAPTION="Area"
START = ROW=04 COL=53 END = ROW=04 COL=62 LENGTH = 3

«L» NAME=MO/ INDEX= NONE DISPLAY= STD. CAPTION="MO £"
START = ROW=04 COL=63 END = ROW=04 COL=80 LENGTH = 12

PRINT

Each entry takes 2 lines and 80 columns.
PAGE-SIZE = 66 TOP-MARGIN = 2
NEXT-PAGE = FORM FEED LEFT-MARGIN = 0
ENTRIES-PER-PAGE = 15
BLANK-LINES-BETWEEN-ENTRIES = 2

WSOUT.FMT.

```
 CARDBOX-Plus   File =  WSOUT.FMT         LIST FILE

 Attention : Sales Manager - Portable Computers ( Head Offics )
 ______________________________________________________________
 Visit Report - AAAAAAAAAAAAAAAAAAAAAAA Date - TTTTTTTT Time - UUUUUU
 Salesman : George Carter Area[ K ] Last Visit NNNNNN Monthly £ LLLLL Class[ M ]
 Usual Contact : HHHHHHHHHHHHHHHHHH Position : IIIIIIIIIIII
 Contacted this visit : XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 Action ---->  YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
Requird --->  YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
Comments   WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
           WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
Products Purchased >RX [ O ] FX [ P ] HX [ Q ] QX [ R ] PX [ S ] Y=Yes N=NO
Order Obtained ?  VVVVVVVVVVVVVVVVVVVVV
Order Details
 ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ
 ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ
 ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ

    ------------------------------End or Visit Report------------------------------
```

Fields: A=CO T=DA U=TI K=AR N=LV L=MO M=CL H=CN I=PO X=PS Y=PR W=GC O=P1 P=P2 Q=P3 R=P4 S=P5 V=OR Z=OT

«A» NAME=CO/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=05 COL=16 END = ROW=05 COL=40 LENGTH = 23

«H» NAME=CN/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=07 COL=17 END = ROW=07 COL=36 LENGTH = 18

«I» NAME=PO/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=07 COL=47 END = ROW=07 COL=60 LENGTH = 12

«K» NAME=AR/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=32 END = ROW=06 COL=34 LENGTH = 1

«L» NAME=MO/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=64 END = ROW=06 COL=70 LENGTH = 5

«M» NAME=CL/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=77 END = ROW=06 COL=79 LENGTH = 1

«N» NAME=LV/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=47 END = ROW=06 COL=54 LENGTH = 6

«O» NAME=P1/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=13 COL=25 END = ROW=13 COL=27 LENGTH = 1

```
«P» NAME=P2/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=13 COL=34 END = ROW=13 COL=36 LENGTH =  1

«Q» NAME=P3/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=13 COL=43 END = ROW=13 COL=45 LENGTH =  1

«R» NAME=P4/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=13 COL=52 END = ROW=13 COL=54 LENGTH =  1

«S» NAME=P5/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=13 COL=61 END = ROW=13 COL=63 LENGTH =  1

«T» NAME=DA/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=05 COL=47 END = ROW=05 COL=57 LENGTH =  9

«U» NAME=TI/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=05 COL=64 END = ROW=05 COL=71 LENGTH =  6

«V» NAME=OR/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=14 COL=18 END = ROW=14 COL=40 LENGTH = 21

«W» NAME=GC/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=11 COL=10 END = ROW=12 COL=79 LENGTH = 136

«X» NAME=PS/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=08 COL=24 END = ROW=08 COL=54 LENGTH = 29

«Y» NAME=PR/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=09 COL=14 END = ROW=10 COL=77 LENGTH = 124

«Z» NAME=OT/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=16 COL=01 END = ROW=18 COL=80 LENGTH = 234


Each entry takes  18 lines and  80 columns.
    PAGE-SIZE = 66              TOP-MARGIN = 4
    NEXT-PAGE = FORM FEED       LEFT-MARGIN = 10
    ENTRIES-PER-PAGE = 1
    BLANK-LINES-BETWEEN-ENTRIES = 0
```

LABELOUT.FMT.

```
CARDBOX-Plus    File = LABELOUT.FMT    LIST FILE

HHHHHHHHHHHHHHHHH
IIIIIIIIIII
AAAAAAAAAAAAAAAAAAAAA
BBBBBBBBBBBBBBBBBBBBBB
CCCCCCCCCCCCCCCCCCCCCCC
DDDDDDDDDDDDDDDDDDDDDDD
EEEEEEEEEEEEEEEEEEEEEEE

Fields: H=CN I=PO A=CO B=A1 C=A2 D=A3 E=A4

«A» NAME=CO/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=05 COL=01 END = ROW=05 COL=25 LENGTH = 23

«B» NAME=A1/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=06 COL=01 END = ROW=06 COL=27 LENGTH = 25

«C» NAME=A2/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=07 COL=01 END = ROW=07 COL=27 LENGTH = 25

«D» NAME=A3/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=08 COL=01 END = ROW=08 COL=27 LENGTH = 25

«E» NAME=A4/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=09 COL=01 END = ROW=09 COL=27 LENGTH = 25

«H» NAME=CN/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=03 COL=01 END = ROW=03 COL=19 LENGTH = 17

«I» NAME=PO/ INDEX= NONE DISPLAY= STD. CAPTION=""
START = ROW=04 COL=01 END = ROW=04 COL=13 LENGTH = 11


                                                    PRINT

Each entry takes    7 lines and    58 columns.
    PAGE-SIZE = 66                TOP-MARGIN = 2
    NEXT-PAGE = FORM FEED         LEFT-MARGIN = 5
    ENTRIES-PER-PAGE = 6
    BLANK-LINES-BETWEEN-ENTRIES = 2
```

SAMPLE PRINTOUT – PRINT command

```
Company  Epson (UK) Limited       ***********************************************
Add 1  Dorland House              *Contact : John Jones      Pos: Commercial Mgr *
2  388 High Road                  *Business: Printers/Computer Manufacturer      *
3  Wembley                        *Area: 3   Month £ 12345 Class A Visit 241283 *
4  Middlesex  HA9 6UH             *Products:1 Y  2 Y  3 N  4 N  5 N  Y Yes N NO *
Tel No: 01 902 8892  TIx : 98765 ***********************************************
Visit Report  Date  200284     Time  1000        Order ?  Next week

Comments: Good products, helpful to third party software developers and very free with
          their information on all their products.
Contact: John Jones
Action Required: We have to send an evaluation copy for inclusion in their
                 Third party software catalogue.

Orders Taken

   Prod code       Col       Size       Qty       Price      Spec   Disc Comments

     1234          12        123        22        12.99      -5%    Wholesale discount
                                                                     to encourage
```

SAMPLE PRINTOUT – WRITE command

```
A:Epson (UK) Limited
B:Dorland House
C:388 High Road
D:Wembley
E:Middlesex
H:John Jones
I:Commercial Manager

A:Cottage Industries Inc
B:69 Gallows Hill
C:Kings Langley
D:Herts
H:Mr Ron Brown
I: Manager
```

TUTORIAL

This section of the manual is intended as a guide to the facilities Portable Cardbox-Plus provides and as an introduction to its operation. On a first reading, do not worry too much about the details of the commands and the way they work: treat it rather as a guided tour showing you the highlights of what Portable Cardbox-Plus can do.

Page numbers in square brackets [] refer you to the appropriate parts of the main manual, where everything is covered in greater detail.

The tutorial section is organised as follows:

Adding cards
  Entering data
  Indexing
  Editing cards
  The SAVE command

Deleting cards

Other commands

Starting Portable Cardbox-Plus [3-1]

We assume that you have the Portable Cardbox-Plus ROM in slot B:, and the files SALESMAN.FMT and SALESMAN.FIL on the RAM drive A:, and that you are logged on to drive A:.

In response to the operating system's "A>" prompt, type the command

B:CARDBOX A:SALESMAN

and hit RETURN.

The database display

Cardbox-Plus will display its copyright notice. After a few seconds, this will disappear, and after a further short pause the screen will look something like this.

```
Level 0 - RECORD 1 OF 12        READY
Company ▶Epson◀(UK) Limited     Contact : John▶Jones◀ Pos Commercial Mgr
Add 1 Dorland House             Business: Printers/Computer Manufacturer
2 388 High Road                 Area:▶3 ◀Month £12345 Class ▶A◀Visit▶241283◀
3 Wembley                       Products:1▶Y◀ ▶ 2▶Y▶ ◀ 3▶N◀ 4▶N◀ 5▶N◀ Y=YES N=NO
4 Middlesex HA9 6UH
Tel No: 01 902 8892 Tlx : 98765
Enter command: ■
```

This is the top 6-line slice of the first card in the example database. Now hit **PF2** to display the middle slice:

Level 0 - RECORD 1 OF 12 READY
Visit Report Date ▶200284 ◀ ▶ Time 1000 Order ?▶Next week ◀
Comments: Good products , helpful to third party software developers and very free with information on all products.
Contact: John Jones - Commercial Manager
Action Required: We have to send an evaluation copy for inclusion in their Third party software catalogue.
Enter command: ■

and **PF3** for the bottom slice:

Level 0 - RECORD 1 OF 12 READY
Orders Taken

Prod code	Col	Size	Qty	Price	Spec	Disc	Comments
1234	12	123	22	12.99	–5%		Wholesale Discount in future

Enter command: ■

Finally, hit **HELP**. The display will change to:

CARDBOX-Plus File = SALESMAN.FIL
Level 0 - RECORD 1 OF 12
Company ▶Epson◀(UK) Limited
Add 1 Dorland House Contact : John ▶Jones◀ Pos : Commercial Mgr
Enter command: ■
SElect, INclude, EXclude; HIstory, BAck, CLear; KEep;
ADd, DUplicate, EDit, DElete; REad, WRite; FOrmat, PRint; QUit
EDIT: ↑ =1st ↓ =last ←=back →=fwd ENTRY: ESC=erase

Hit HELP again to restore the previous display.

You can use the **PF1**, **PF2**, **PF3**, and **HELP** keys at any time, so in the rest of this tutorial we shall be showing the complete screen as it would be seen on a 24-line display.

You will notice that some words, numbers and dates on the display have heavy arrows pointing at them, and these are the items which have been indexed for fast retrieval. In this manual we also use bold type to indicate the indexed items. Thus, we print:

Name: **Epson** (UK) Limited

where

Name: ►Epson◄ (UK) Limited

appears on the screen.

Each card can be indexed on any number of selected words, dates, or numbers, and in your own databases, you will choose yourself what to index. If you index two words next to each other, the arrows will point at them both and there will be no arrows between them. Occasionally you will see arrows pointing at a blank space: this means that anything you enter in this space will be indexed. There is more about indexing in a later section of this Tutorial.

In each of the screens you have displayed so far, the top line says "Level 0 - RECORD 1 OF 12", and this means that you are looking at the first of 12 records (the actual number may be different in the database you have) and that you have not made any selections yet.

The READY message at the top of the screen tells you that Cardbox-Plus is waiting for you to type something. Other possibilities are WAIT (Cardbox-Plus is busy processing), PRINT (Cardbox-Plus is printing), LINK (another part of Cardbox-Plus is being loaded), or INDEX (Cardbox-Plus is indexing a card in the database).

We will now show you how to scan through the cards in the database, and then how to select cards on various indexed fields.

Scanning [3-16]

To look at the next record in sequence, hit the key. The status will change from READY to WAIT and back to READY, the heading will say "RECORD 2 OF 12", and the second card in the database will be displayed.

You can look through the file step by step in this way. The control keys work as follows:

→ – move to the next card

← – move to the previous card

↑ – move to the first card

↓ – move to the last card

Whenever you step to a new card, Cardbox-Plus displays it on the screen, overwriting whatever was there before. You do not have to wait for this process to finish before stepping to the next card or typing a command: you can type as soon as the READY status appears, and Cardbox-Plus will stop altering the screen, look at whatever you typed, and then finish altering the screen. This is particularly useful when you want to scan through the database quickly. To see how this works, hit → several times in quick succession.

Commands [3-12]

To perform selections and other Cardbox-Plus operations, you enter commands in response to the "Enter command:" prompt near the bottom of the screen. Command entry works as follows:

- Only enter the first two letters of any command word: thus for "SELECT" just type "SE", and Cardbox-Plus will fill in the rest.

- Cardbox-Plus will detect most mistakes in command entry as you are entering the command, and display an error-message and prevent you from typing any more. Whether or not Cardbox-Plus has detected the mistake, you can correct it by means of the Backspace key, which deletes one character at a time, or hit the **ESC** key to cancel the entire command.

- When you have finished entering the command, hit the RETURN key.

Selection [3-13]

So far you have looked through the records in the database one at a time. This is useful, but it is not really the point of Cardbox-Plus. As well as looking through the cards, you want to be able to ask such questions as "How many customers buy product 1 ?".

To do this, use the SELECT command. Type **SE**. Cardbox-Plus will automatically display the rest of the command name, and place the cursor where you can enter the selection criteria:

Enter command: SELECT ■
Field name (optional) then "/" for words, "\" for numbers; "=" for lists
CO A1 A2 A3 A4 TN TX CN PO BT AR MO CL LV P1 P2 P3 P4 P5 DA TI OR GC PS PR OT
LIST: ↑ =1st ↓ =last ←=back →=fwd ENTRY: ESC=erase

To carry out a search, you need to define a key word, number, or numeric range which you want to find in the database. You can be even more specific, and select only those records which contain the

chosen item in a specific **field**. Cardbox-Plus lists the 2-letter names which have been assigned to the fields; in this sample database, we have used **CO** for company, **P1** for Product 1, **A1** for address line 1, **TN** for telephone, etc.

In this example, we need the "Product 1" field, so press **P1** followed by "/" to specify an alphabetic search ("\" is used for numeric searches, and "=" for special functions). The display will change again:

Enter command: SELECT P1/■
Enter the word to be found. (hit RETURN at end)
"?" will match any letter, "+" any sequence of letters.
EDIT: ↑ =1st ↓ =last ←=back →=fwd ENTRY: ESC=erase

You can now type the word you are looking for, in this case "Y" and hit RETURN to tell Cardbox-Plus you have finished entering the command. Cardbox-Plus will display the status message "WAIT" and will then display the following records:

Level 1 - Record 1 of 10 READY
Company ▶Epson◀(UK) Limited

etc.

Cardbox-Plus has now entered the first level of selection and has found ten records containing customers who purchase product one. The message at the top of the display shows that you are looking at the first of the selected records, and also tells you how many of them there are. Try using the arrow keys to scan through this selection of cards.

When you have finished scanning through the selected cards, you can refine or extend the selection further: but for now we'll keep it simple and return to level 0 (where the entire database is displayed) before trying another selection. To do this, use the Clear command (**CL** then RETURN). The heading will change back to "Level 0", and you can try another SELECT command.

Approximate matching

You may want to be vague about the index words you are looking for, either because you do not remember exactly how a name is spelt, or because you want to retrieve a group of related words. Cardbox-Plus allows you to do this by means of two special characters. "?" will match any single letter, and "+" will match any sequence of zero or more letters. Thus "MANAGE+" will match MANAGER, MANAGERESS, and MANAGEMENT; and "W??KIN+" will match "WATKINS", "WILKINS", "WATKIN", and so on.

Numbers

The SELECT command allows you to look for indexed numbers as well as indexed words. Just use a backslash ("\") instead of a slash in the command entry. For instance,

SELECT **AR\2:3**

(you only type the *underlined* characters: Cardbox-Plus displays the rest) will find all the records where the value in the "Area" field is between 2 and 3 inclusive.

If your national keyboard does not include a backslash, use an exclamation mark "!" instead - Cardbox-Plus will still display it as a backslash.

Dates

SELECT **LV\121283** will find all the records where the date in the "Date Last Visited" field is equal to 121283. You can also represent dates in the format "month-day-year" (12-31-83) or "year.month.day" (83.12.31). Portable Cardbox-Plus decides which format the date is in by looking at whether you are using slashes, hyphens, or dots to

separate its component elements. You may also enter a range say, 1/1/83:25/2/83 to find every card between 1st of January to the 25th February 1983.

Listing the index

When you are entering an approximate specification for a word, or a numeric range, it can be useful to see what matching entries Cardbox-Plus has in its index. To do this, type the selection command you want, *do not* **hit RETURN, but hit^Q** instead. Cardbox-Plus will then search through its index for entries that match the command you have typed so far, and display them on the screen. For instance, to find all indexed company names beginning with **A**, enter *SE*LECT *CO/A+* and then hit^**Q**. Cardbox-Plus will then display:

ANTHRAX
ASHTON
ASHTONTATE

Enter command: SELECT AD/A+■
Enter the word to be found. (hit RETURN at end)
"?" will match any letter, "+" any sequence of letters.
EDIT: ↑ =1st ↓ =last ←=back →=fwd ENTRY: ESC=erase

You can then alter the command, cancel it, or perform it by hitting the RETURN key, just as if you had never hit^**Q**.

Multi-level searching

"Which companies on file buy products 1 and 2 , yet do not buy product 3 which is on special offer for this month ?"

First	**CL**EAR	to return to level 0;
Then	**SE**LECT **P1/Y**	to select for Product 1;
	SELECT **P2/Y**	to select for Product 2;
	SELECT **P3/N**	to select those who do not buy Product 3;

The display will now say "LEVEL 3", to show that you have made three cumulative selections so far, and will show the first card which fulfils all three of the criteria you specified.

If you want to exclude (say) customers in Area A from this selection, enter the additional command

EXCLUDE AR/A

The SELECT command will keep only those cards in your current selection that match your specification, and will reject the others.

The EXCLUDE command will reject those cards in your current selection that match your specification, and will keep all the others.

The INCLUDE command will keep **all** the cards in your current selection, and will add any other cards that match your specification.

History

Sometimes you will want to find out what commands you used to select cards, and how many cards were eliminated or added at each stage. The **HISTORY** command allows you to do this.

To see how this works, type **HI** and hit RETURN. The following display will appear:

Now at level 4. File contains 12 records.
Level 1 – SELECT P1/Y – 10 RECORDS SELECTED
Level 2 – SELECT P2/Y – 8 RECORDS SELECTED
Level 3 – SELECT P3/N – 5 RECORDS SELECTED
Level 4 – EXCLUDEAR/A – 3 RECORDS SELECTED
FUNCTION COMPLETED - Hit ESC to continue: ■

After reading this display, hit the **ESC** key.

Keeping selections [3-15]

Now for an even more complicated enquiry: which customers have not purchased product 5 in Areas A and B, but ignoring Class E and F ?

First	**CLEAR**	return to level 0;
Then	**SELECT P5/N**	select those who don't buy Product 5;
	SELECT AR/A	select those in Area A
	KEEP = AREAA	keep this selection under the name "AREAA";
	BACK	return to level 1 again;
	SELECT AR/B	select those in Area B;
	INCLUDE=AREAA	add in the previously kept selection;
	EXCLUDE CL/F	those Class F customers;
	EXCLUDE CL/E	exclude the Class E customers as well;

The KEEP command stores a selection for the duration of the current Cardbox-Plus session. Any number of selections can be kept, provided each one has a distinct name, and the selections thus kept can be used in any SELECT, INCLUDE, or EXCLUDE command by using "=" instead of "/".

Using the cards [3-25,3-26]

Once you have selected the particular cards you want, you can do the following:

- Print individual screen images, by hitting ^**P**.
- Print the entire selection, by using the PRINT command. Printing can be to a file or to the printer, and can be in any sequence: for instance, alphabetical order of names.
- Write out the entire selection, by using the WRITE command, in one of a number of formats suitable for reading by other programs.
- Write out the data in a form that can be read by the Mailmerge option of Wordstar, or by other similar word processing programs, and used to print standard letters.

Other selection commands

The BACK command undoes one selection at a time (the CLEAR command undoes them all at once).

The FORMAT command allows you to display or print cards in formats different from the one usually used for the database.

Adding cards [3-16]

Now that you know how to look at and retrieve the cards in the database, you can try adding some of your own. To do this, first use the CLEAR command to get to level 0 (you can add records at higher levels, but there are some differences in what happens after you have added a card), and then enter the ADD command.

Cardbox-Plus will display a blank form on the screen, which should look like this:

NEW RECORD:
Company ►■ ◄ Contact: Pos:
Add 1 Business:
A2 Area:► ◄ Month # Class► ◄Visit► ◄
A3 Products:1► ◄ 2► ◄ 3► ◄ 4► ◄ 5► ◄Y=Yes N=no
A4
Tel No: Tlx:
Enter command: ADD

Entering data

Now type the text for each field in UPPER- and lower-case, just as you want it to appear. You can use any special symbols you like. Any entry in a field marked by ► ◄ will be automatically indexed.

If you mistype something, use the DEL key to delete one character at a time until you have deleted the mistake: then type the corrected text. Other ways of correcting mistakes will be described later.

If you try to type past the end of the field, Cardbox-Plus will move the cursor outside the field and will ignore the surplus characters. If you have a field which spreads over more than one line, there is no need to do anything special at the end of the first line: Cardbox-Plus will automatically move you to the next line of the field.

When you have entered text into a field, hit RETURN and the cursor will move to the next field in the card (in the case of the "Address" field, it will move to the next line of the field if there is one left). If you have nothing to put in one particular field, hit RETURN without typing any text.

Indexing [3-14,3-20]

Cardbox-Plus needs to know which words are to be indexed. There are four possible ways in which a field's indexing can be defined:

INDEX = [ALL] means that ALL words in this field are indexed (in the sample database, date of birth, sex, marital status, and number of children are all INDEX = ALL fields).

INDEX = [NONE] means that NONE of the words in this field are indexed ("Dear" and telephone number).

INDEX = [AUTO] means that the words in this field are AUTOmatically indexed unless you specify otherwise when entering them (county, income, profession, last contact, and next contact).

INDEX = [MAN] means that words are not indexed unless you MANually tell Cardbox-Plus to index them (name, address, and notes).

You cannot influence the indexing in an 'ALL' or 'NONE' field while entering text. In an 'AUTO' or 'MAN' field you can alter the indexing of a word (from indexed to not indexed, or vice versa) by hitting the TAB key while the cursor is on or just beyond the word.

To see how easy all this really is, try entering a few cards yourself: for instance, another copy of Epson's record.

After you have entered the ADD command, the cursor is in the 'Company' field.

Type "**Epson (UK) Limited**", using the left arrow keyboard, move the cursor back to the word "Epson" and hit the **TAB** (or control-I) key to tell Cardbox-Plus to index "Epson". Arrows will appear pointing at the word. Hit **RETURN** to move to the next field.

The cursor is now in the 'Address Line 1' field. Type "**Dorland House**" and hit **RETURN**.

The cursor is now in the 'A2' field, and you can continue to enter a new address line.

It is possible to make the four different address fields into one by making one field which is defined as DISPLAY=LINE. This has the effect of creating a large area on the display with lines terminated by little hooks. These symbols tell you that the "Address" field is a multi-line field (defined by DISPLAY=[LINE], see page [3-6]), and show you where each line ends. As you type, the arrows will move to the right. If you type "**388 High Road**" and hit **RETURN**; then "**Wembley**", **TAB**, **RETURN**. You would now be on the last line of the "Address" field, and this is to be left blank in this case: so just hit **RETURN** by itself.

The end-of-line marker arrows will disappear from the 'Address' field and the cursor would move to the next field.

Since this isn't the case, though , continue filling in the card with the various details required. Notice that each time you press **RETURN** , PC+ moves you to the next field. When the next field is in another "Slice" of the card , PC+ will automatically position the cursor at the beginning of the first field .

When you have finished filling in the card, hit the **ESC** key. Cardbox-Plus will say

Hit S to store, E to edit, Q to abandon:

You have three choices: to edit the displayed record, to throw away the record you have entered, or to store it.

E – the cursor goes back to the first field in the card and you can carry on entering or editing text. (Usually you only use this if you hit **ESC** by mistake).

Q – Cardbox-Plus ignores the card you were entering, and displays whatever it was displaying before you typed the ADD command.

S – this is what you usually do. Cardbox-Plus says **WAIT** at the top of the screen, stores the card, says **INDEX**, and indexes the card under every word specified. This may take a few seconds.

When you have finished entering a card and Cardbox-Plus has stored it, what happens next depends on whether you are at Level 0 (ie you have not made any selections before entering the ADD command) or at a higher level of selection. At level 0, Cardbox-Plus will always display the new card. At higher levels, the new card will generally disappear from view.

Editing cards

From time to time you will make mistakes in entering information into the database, or need to alter a card that was entered before. Cardbox-Plus provides extensive editing facilities to help you do this.

If you are using the ADD command to add a new card, you can use all the editing facilities described here, as well as those mentioned in the last section. If you want to alter an existing card, use appropriate commands to display it on the screen, and then enter the EDIT command.

The cursor tells you where you are in the card. In order to make any correction or change, you first have to move the cursor to where you want the change made. The following codes are used to move the cursor:

To move the cursor:	Use:
One character to the left	←
One character to the right	→
One line up within the field	↑
One line down within the field	↓
To the previous word in the field	CTRL-←
To the next word in the field	CTRL-→

To the start of the previous field	^B
To the start of the next field	RETURN

Once you have positioned the cursor, you have a choice of things to do:

Key	Result
Any printing character	If INSERT mode is OFF: Write the character at the current cursor position, replacing whatever was there before, and move the cursor one place to the right. If INSERT mode is ON: Insert the character just before the current cursor position, and move all following text (and the cursor) one place to the right.
INS	If INSERT mode was OFF, turn it ON; if it was ON, turn it OFF.
DEL	Delete the character presently at the cursor position and shift any following text one place to the left.
BS	If INSERT mode is OFF: Move the cursor one place to the left. If INSERT mode is ON: Delete the character just before the current cursor position, and move all following text (and the cursor) one place to the left.
TAB	Index or unindex the word at the current cursor position.

The easiest way to work all this out is to try it. You do not need to be able to use all the editing characters: you can do most of your editing with only a few of them. But here are some hints:

To erase from the cursor to the end of a field, use **DEL** repeatedly.

If you hold down a key to make it repeat, you may find that the display begins to lag behind what you are doing, or even does not change at all. Do not worry. If you stop whatever you are doing for a moment, the display will catch up.

While editing, always remember to check what words are being indexed, and use the TAB key to adjust the indexing if necessary.

When you have finished editing, hit the **ESC** key. Cardbox-Plus will say

Hit S to store, E to edit, Q to abandon:

You have three choices: to edit the displayed card further, to throw away the changes you have made, or to store the amended card.

E – the cursor goes back to the first field in the card and you can carry on entering or editing text. (Usually you only use this if you hit **ESC** by mistake).

Q – Cardbox-Plus ignores the changes you were making, and redisplays the unchanged version of the card.

S – this is what you usually do. Cardbox-Plus says **WAIT** at the top of the screen, stores the changes, says **INDEX**, and does any necessary re-indexing. This may take a few seconds.

When you have finished editing the card and Cardbox-Plus has stored it, it will display the edited version of the card.

Deleting cards [3-22]

To delete an incorrect or out-of-date card from the Cardbox-Plus database, first display the card you want to delete on the screen, then use the DELETE command. Cardbox-Plus will say **WAIT** at the top of the screen, delete the card, say **INDEX**, and remove all index

references to the deleted card. What happens next depends on whether you have made any selections before entering the DELETE command.

At level zero (no selections made) the deleted card will disappear and Cardbox-Plus will display the card that follows it in the database. At any other level, Cardbox-Plus will replace the card by a message saying "**DELETED RECORD**". This message is a sort of tombstone for the deleted card, and it will appear whenever the card you have deleted would have appeared, until you next return to level 0, when it will disappear.

Cardbox-Plus will re-use the space vacated by the deleted card.

Other commands

The DUPLICATE command works like ADD, but instead of giving you a blank form, it gives you one that looks like the card that is currently displayed. This is useful when you are entering many similar cards. Remember, this command does not affect the original card.

The READ command reads data from a disk file of standard format. It is useful when recovering from errors, or when transferring data from other systems into Cardbox-Plus.

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