

MASTERFILE 8000

DATA FILING AND RETRIEVAL FOR HOME AND BUSINESS
FOR AMSTRAD PCW COMPUTERS

MASTERFILE 8000

1st Edition : January 1987

MASTERFILE 8000 is an information filing and retrieval program for use with the Amstrad PCW series of computers. The program runs under CP/M and can run with the minimum single disc drive configuration.

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CAMPBELL SYSTEMS

7 Station Road, Epping, Essex CM16 4HA, England

COUNTRY : Great Britain

SC No	Year	Description	End Purchase Date	Purchase Amount	Current Value
1840		1d intense black	FM May77	£10.00	£20.00
1847	99	2d vermillion	FM Oct86	£4.00	£4.00
213		1d green	UM Jan87	£1.00	£1.40
198		1d purple and green	UM Oct85	£3.00	£4.00
200		2d green and red	UM Oct85	£4.50	£4.00

03: Display Options

- Steer data..... [F1]
- Alter data..... [F2]
- Erase data set..... [F3]
- Design page..... [F4]
- Next key or..... [F5]
- Print record number..... [F6]
- Go to record number..... [F7]
- Print single record..... [F8]
- Print record..... [F9]
- Erase and reinsert..... [F10]
- Insert new record..... [F11]
- Show re-sequenced..... [F12]
- Sort by form..... [F13]
- Go to search menu..... [F14]
- Exit to main menu..... [F15]

Megaglomerate Ltd

Customer Details and Invoices

Sales Contact : Martin McKinnic
Telephone : 0245 854321
Reference : MCL
Date of last order : 14 Aug 86
Value to date : £31,455.00

British United Freight
483 Western Avenue
Gloucester
GL5 5JN

Tel: Mike
Contact: BUF
Ref:

Invoice	Tax point	Amount	Date paid
12044	28 Aug 87	£235.00	02 Oct 87
12398	29 Aug 87	£38.00	02 Oct 87
12458	01 Oct 87	£205.00	---
12453	01 Oct 87	£133.00	---
12533	03 Nov 87	£1,044.50	---
12538	03 Nov 87	£355.55	---
12703	10 Nov 87	£200.00	---
12702	11 Nov 87	£29.20	---
12839	04 Dec 87	£883.55	04 Dec 87
Totals:		£3,253.90	---

Date of invoice: 04 Dec 87
File: INVOICES
Records: 00017
Selected: 00009
New

Be sure to allow at least 10 working days delivery time when ordering close to Christmas for Martin for urgent attention.

File: MASTERFILE
Records: 00001
881

Campbell Systems

<p>Welcome to MASTERFILE 8000 !</p> <p>MASTERFILE 8000 is a further development of a long line of MASTERFILE programs, originating in 1980. The '8000' refers to the PCW 8xxx series of computers for which the program is designed. In the interests of brevity will usually refer to the program in this manual simply as MASTERFILE, or MF8000.</p> <p><u>Summary of Facilities</u></p> <p>A computer filing system must store, search, display, and print your filed information. It must also permit updates by way of insertions, erasures, and alterations. Information, or DATA as we usually refer to it, is divided into files, records, and fields. Like all filing programs, MASTERFILE also demands that data is so organised. But unlike most other programs, MASTERFILE allows all your data to be of variable length. This means there is no wasted space on the disc. Thus you need only give some thought to the overall volume of data when planning a file.</p> <p>With MASTERFILE, the way in which data is presented is not geared to the way in which it is stored, and you may devise several different screen views of the same file of data. The display styles can be as diverse as address labels, index cards, and summary tabulations with in-flight column totals. What is more, one may extend or modify the displays at any time.</p> <p>We have provided some very special display options - the like of which you will not see in most CP/M software. You can embellish your displays with lines, boxes, panels. Even giant characters are possible. A most useful feature is that you can choose your line separation at PIXEL resolution. An interval of 9 or 10 pixels per line is often preferable to the 8 pixels which standard CP/M offers.</p> <p>A further provision, which we believe to be unique, allows you to sort your displayed data, without changing the file. Thus you can access your records in one sequence, and display in another. Typically, up to 1000 records can be handled in this way.</p> <p>It is possible to communicate data to other systems, for example to feed names and addresses to a mail-merge word processor. This is called EXPORT. With MASTERFILE one may also IMPORT data (in ASCII form) from other systems.</p> <p>MASTERFILE files may be KEYED, which means that records are then automatically sequenced by one of the data fields. By means of EXPORT and re-IMPORT, it is a simple matter to generate from one file another file using a different data field as its key. In like manner one may convert a non-keyed file into a keyed file. Almost no matter how you design a file, it is easy to re-organise it as your needs change, without having to re-enter all the data.</p> <p>You can locate records in a variety of ways. You can just 'browse' through the whole file; or FIND a particular key, or GOTO a particular record number. At a higher level of sophistication, one can SEARCH out a sub-set of the file by comparing the data with some argument. And finally, you can allocate records to a SET for later reference. There are seven</p>	<p>Chapter 1: INTRODUCTION</p> <p>Program summary, components, software licence, setting started</p> <p>Chapter 2: MASTERFILE 8000 CONVENTIONS</p> <p>Key notation, control panel, menus and prompts, menu map, text editor</p> <p>Chapter 3: FILE CONCEPTS AND DESIGN</p> <p>Fundamentals, file design, keyed/unkeyed files, sequence, size considerations</p> <p>Chapter 4: DISC AND FILE MANAGEMENT</p> <p>Drive switching, file names, file load, save, merge, ASCII import, ASCII export, re-index, partial save, erase, real and RAM disc directories and their use</p> <p>Chapter 5: STARTING A NEW FILE</p> <p>Data names and numbers, creating a new file, altering data names, reserved names, data attributes, dates, format zero, new records, surname shuffle</p> <p>Chapter 6: DISPLAY AND PRINT FORMATS</p> <p>Format mode, new format, screen line spacing, record data zone, viewing a format, altering inserting and erasing elements, data elements and display attributes, headings, lines, boxes, panels, printer options, word processing and numeric editing</p> <p>Chapter 7: DISPLAYING AND ALTERING DATA</p> <p>Display mode, target record, field cursor, altering and erasing data, assigning to a set, erasing records, inserting new records, switching formats, browsing, GOTO, FIND, printing, page and line numbering, record numbers, sorting by any field</p> <p>Chapter 8: FILE SEARCH</p> <p>Search mode, data compare, record numbers, select every, invert, sets and combination searches, assigning naming and clearing sets</p> <p>Chapter 9: RELATIONAL FILES</p> <p>How files relate, linking two files, relational headings, look-up files</p> <p>Chapter 10: CUSTOMISING MASTERFILE 8000</p>
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using our 'HOTLINE' service.

Purchasing this product allows you to use it for your own purposes as a single user. You are not entitled to use it on more than one machine. If you are in any doubt as to whether you should obtain a multiple user agreement, you must contact Campbell Systems without delay.

You are expected to take a copy of the program for your own security, and your own use. Passing the original, or a copy of it to others, or receiving a copy from others, is unlawful.

Getting Started



Version 1.0



Take a working copy of the MASTERFILE 8000 disc, using the CP/M DISKII Utility. Instructions on how to do this can be found in the manual which accompanies your machine. Do not un-protect your original MASTERFILE 8000 disc. Keep it only as an emergency back-up.

Load CP/M into the PCW (Side 2 of the System Disc), and when you get the prompt (A>), type MF8000, followed by pressing [ENTER]. This will load MASTERFILE 8000.

You will see that the start screen displays your unique licence number. Record the number on the Software Licence Registration Card. Then press [ENTER], and menu 01 will appear.

From menu 01, press [L] which will take you to menu 02. Press [C] and a list of the files on the MASTERFILE 8000 disc will be displayed. Using the cursor arrow keys, place the cursor over the file README.MFC.

Press [L] for load. README.MFC contains any last minute

sets available, which can be put to powerful use where composite searches are required.

To change any data, all one has to do is to 'steer' to it using the cursor direction keys and press and press another special key. It could not be more simple.

Special facilities are provided for handling dates - so that they can be keyed and displayed in 'human' form, yet searched and stored in compact 'machine' form suitable for searching.

A special facility is also provided for handling names so that the title and initials are displayed the way you would want to see them on a label, yet the surname governs searches and sequence.

A most powerful feature is that files may be RELATIONAL. This means that a display can be built which combines data from several records each retrieved from a different file. Thus data common to two or more files need only be keyed once, and any number of records in one file can refer to the same related data in another file.

MASTERFILE is entirely menu-driven, and there is nearly always a menu or prompt on the screen inviting your response. At such times as the program is busy doing something rather than waiting for you, it informs you.

MASTERFILE 8000 Documentation

Together with this Manual, the product comprises a 3-inch disc, containing the program, example files, the Index to this Manual, a Glossary, and a READ ME file. A complete file list follows.

MASTERFILE 8000 Disc Components

 Program: MF8000.COM MF8000P2.COM
 MF8000P3.COM
 MF8000P4.COM
 MF8000P5.COM

Customise utility: MF8000CU.COM

Manual index: MFMANIX.MFC

Stop press: README.MFC

List of example files: XFILES.MFC

The example files, listed in XFILES.MFC, are all named XnnNAME.MFC, where nn is the example number, and NAME is a short identifier.

Software licence

Please fill in and return the Software Licence Registration Card as soon after purchase as possible. It will save you time when

We now describe the notation used in this manual, and the general rules of dialogue between the user and the program.

Key Notation

We use square brackets to denote a PCW key with a word on it. Thus for example where we refer in the manual to [CAN] we mean the key with the word 'CAN' on it, and not the keys 'C', 'A', and 'N'.

The four cursor direction keys which have a large arrow on them we will refer to as [LEFT] [RIGHT] [UP] and [DOWN]. The key at the centre of these four, which is decorated with a '2' and what looks like a tea strainer, we will refer to as [CENTRE]. These keys are used frequently with MASTERFILE.

Where the program refers to the cursor keys in its messages, it uses graphic arrow characters. Where it refers to [CENTRE] it uses a small solid square graphic character.

There are two 'DEL' keys on the keyboard, and we will refer to them as [DEL->] and [<-DEL].

[ENTER] and [RETURN] keys are equivalent; we always describe [ENTER] but either key may be used with equal effect.

Sometimes it is necessary to hold one key down while pressing another, and to describe this we use the notation as in this example: [ALT E] means hold 'ALT' key and press 'e' key.

Much of this manual needs to describe MASTERFILE prompts, and this is usually done by using the <.....> style as in this example:

```
< Give name of file to load >
```

Also, the manual must show you what your keyed response might be, and we use a similar indentation but without the < > characters. Quite often we will add comments or explanation; these will be to the right and follow a semi-colon (:); do NOT key these comments. An example of response:

```
LS                :to request a save
Myfile [ENTER]    :your file name
```

In the above example, only 'LSMyfile' and [ENTER] are pressed.

Where we describe a single-key response in our text, we use the square bracket notation for clarity. Thus we may refer to [C] for example, to describe the action of pressing 'c' or 'C'.

additions and corrections which should be used in conjunction with this manual. Display it (menu 01 [D]), then print it ([H] for menu 03, then [P]). Then do the same for file MFMANIX.MFC, which contains the Index to this Manual.

A suggested study plan follows:

1. Load and study the example files. They cover a range of applications, and you may find one which, with a little tailoring, will do what you want.
2. Explore. Once a MASTERFILE 8000 file is on the RAM disc, you can amend, add, or even destroy it without penalty, as long as you don't SAVE the results. Much design effort has been expended in making MASTERFILE foolproof - you should not be able to put the program into a never-ending loop, or get into an unrecoverable situation.
3. Using the MASTERFILE file MFMANIX, consult this manual as questions occur to you.
4. Read Chapter 3, and practice SAVES and LOADS using the example files (preferably onto a spare formatted disc).
5. Practice adding, amending and deleting data directly from the display, again using example files. Explore other Menu 03 options.
6. Then investigate the SEARCH facilities which MASTERFILE 8000 provides.
7. You should then acquaint yourself with the data names, and how to format a display. Then create your own file, with perhaps, 3 data names.
8. Finally, if you wish to use your MASTERFILE data with other packages, the EXPORT and IMPORT functions should be mastered, again using the example files. Try re-keying a file using export/import functions.
9. We have attempted to make MASTERFILE 8000 readily understandable by newcomers to micro computers. The menus and prompts which support your conversations with the computer have been specially designed to help you. These are backed up by this Manual, with its computer-held Index and Glossary, and the example files.

Behind all this is the Hotline Desk, which is manned Monday-Friday during office hours. If you are stuck, and you feel that you have exhausted all avenues to solve your problem, then telephone or write to

CAMPBELL SYSTEMS HOTLINE
7 STATION ROAD, EPPING
ESSEX CM16 4HA

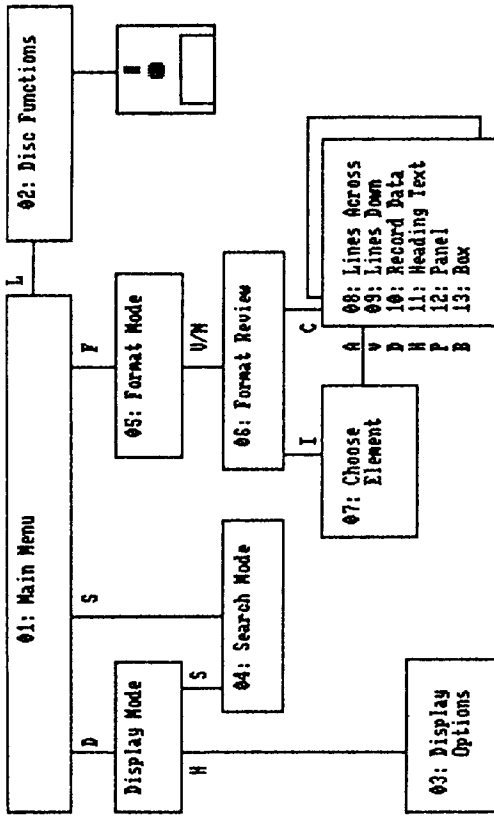
Telephone: EPPING (STD 0378) 77762

Please quote your Licence Number when using this service.

All multi-line menus have a number and title; we will refer to them in this manual by their menu numbers. For example we may refer to menu 01 [L] to indicate selecting the [L] option while menu 01 is showing.

Sometimes one menu will overlay another; when this happens, you must respond to the 'nearest' one, not the obscured one.

The way in which the various menus are linked is summarized in the following chart:



Sometimes a reverse-text (black on green) message appears in the 1st line of the control panel. This is a PROMPT which instructs you to do something. Some prompts can take the form of a menu, i.e. inviting one of several keys to press. Such one-line menus and prompts take priority over any other menu in the main part of the screen. Thus, when you press [L] from menu 02, a prompt asks for the name of the file to load. You must answer this question, or back-out before other menu 02 options can be used.

Text Editor

Much of the time, MASTERFILE can be 'steered' just by pressing menu keys. But there are times when you must key text, for example when supplying new data. When this happens, a prompt appears in the prompt panel, but also a CURSOR appears in the edit panel. The cursor is the same block cursor that CP/M itself first offers, and serves to echo what you key and permit you to edit it before committing it, with [ENTER].

Address: Station Road Dyping Essex CM16 4HA CURSOR
 Drive-A: File:DELEERS Records:00109 Selected:00104 Reference Format:1

Program Modes

In this manual we refer to various 'modes'. A mode simply describes what job the program is doing. We will make frequent reference to the following modes:

- MAIN MENU: the central control point of the system
- FORMAT : where displays are composed or altered
- DISPLAY : where selected records are viewed
- SEARCH : where you ask the program to search for and isolate records

Control Panel

While MASTERFILE is running the lower section of the PCW screen shows a multi-purpose control panel comprising three lines:

1st line: The prompt panel, which tells you what is happening, or contains a message (prompt) asking you to respond.

2nd line: Text editor panel, where any text you key is echoed. The small window at the left shows whether or not you are in INSERT mode. An upward arrow here indicates insert mode.

3rd line: Drive letter, file name, and various file statistics.

```

    Drive-B: File:X01F0005 Records:00107 Selected:00077 Key:Author Format:9
    
```

'Records: xxxxx' says how many records there are in the file.

'Selected: xxxxx' says how many records are currently selected for display, print and export purposes.

'Key: xxxxxxxxxxxx' shows the data name of the key field. For unkeyed files this is blank.

'Format: x' shows which display format is current. 'x' is 0-9.

Menus and Prompts

A MENU is a list of user options from which you may select by pressing an indicated key. The keys are usually shown as upper case A-Z, but in fact the menus will respond equally to lower case letters. In the interests of clarity, we will describe menu letters in upper case in this manual. The larger menus are shown in a rectangular panel, such as:

```

    06: Format Review
    Insert element.....I
    Change this one.....C
    Erase this one.....E
    Show next.....N
    Move menu.....M
    Show in stages.....S
    Printer options.....P
    Exit.....X
    
```

BEEP signal

The audible 'beep' sound is used generally to draw attention to some event, such as:

- a) The detection of an error, e.g. mis-key or disc not in drive.
- b) The completion of a relatively long job, such as a search.

If you prefer to have MF8000 operate in silence, then you may customise so that the word 'BEEP' is shown momentarily in the prompt panel instead. See chapter 10 for details on customising.

Dialogue Summary

Menus and prompts are shown black-on-green, and require a response from you. If more than one menu or prompt is visible, respond to the most recent one. If a prompt shows a cursor in the text panel then the text editor is active and you normally terminate your text with [ENTER]. In many situations, [STOP] or [CAN] will abandon or 'back out' of the response. If there is no cursor, then a single key response is usually all that is required, irrespective of the SHIFT.

Progress and information messages may also be shown in the prompt panel, but being green-on-black they do not demand a response.

All keyed text uses the same editor and the same edit panel. Sometimes the panel starts with text already in it - as when modifying existing data. At other times the cursor alone appears. The maximum amount of text which can be edited depends on the task, but can be as long as 254 characters. The edit window is too small to show all 254 characters at once, but shifts its contents left or right depending on the direction of travel of the cursor. Any attempt to key too many characters is rejected, and a BEEP is produced.

The PCW keyboard tells you if you are in CAPS LOCK, via the red light. The other constant reminder you need is whether you are in insert or overstrike mode. The editor always starts in overstrike mode, but can be 'toggled' to insert mode. Insert mode is signalled with an upward arrow in the small window to the left of the main edit window.

The full list of special control keys recognised by the MASTERFILE text editor is as follows:

```
[LEFT]      Moves the cursor left
[RIGHT]     Moves the cursor right
[SHIFT LEFT] Direct return of the cursor to the 1st
             character
[SHIFT RIGHT] Advance cursor to the right by window
             width
[ALT LEFT]  Same as [SHIFT LEFT]
[ALT RIGHT] Same as [SHIFT RIGHT]
[UP]       Set INSERT mode ON
[DOWN]     Cancel INSERT mode
[DEL->]    Delete the character under the cursor
[<-DEL]    Delete the character to the left of the
             cursor
[ENTER]    Says that you have completed text edit
[STOP]    Says that you have abandoned text edit
[CAN]     Same as [STOP]
```

[SHIFT] and [SHIFT LOCK] Same as on a typewriter

When MASTERFILE is Busy

When the program is busy doing something rather than waiting for you, and the task is potentially lengthy, a normal (green on black) message appears in the prompt panel, informing you what is happening. Thus, while loading a file, the message

```
< -- Reading from disc -- >
```

is displayed. The prompt panel similarly is used to remind you which data field is being addressed. Do not try to respond to these messages.

This Chapter introduces the terms fundamental to an understanding of how filing systems work. This is followed by more particular details of MASTERFILE 8000. There then follows advice on how to plan your MASTERFILE-based application.

Fundamentals

Consider the following pieces of information:

"D J Williams"
"0227 566198"
"24 Acacia Avenue, Epping"

In general, we can call this DATA. In particular, each of the three items we will call a FIELD. Where data fields are associated with each other, such that for example the telephone number and address shown are those of "D J Williams", then one would usually arrange that the fields are stored together. This is like writing them all on the same index card; we call such a grouping of data a RECORD.

Now, suppose that we have another set of data:

"F Thorpe"
"01-507 5561"
"2 The Drive, Barking, Essex"

Clearly this looks similar in structure to the earlier group, and indeed we can regard this as another record of the same FILE. But now consider the following data:

"Nocturne in E flat"
"F Chopin"
"J Lill"
"Philips BBL 7384"

Assuming that this musical data is mutually associated, i.e. the work is composed, performed and recorded as described, then this too constitutes a RECORD, but most assuredly not in the same FILE as the other two examples. We would not intermingle pages of our address book with pages of our music library catalogue.

Thus we can define a FILE as a set of RECORDS of similar structure, each record comprising associated data FIELDS. This definition would apply to virtually any computer filing system. Where computer filing systems differ is in the number and length of the fields permitted, the file capacity, disc storage method, and so on. But the scheme of FILE - RECORD - FIELD is universal.

We now move from the general to the particular, and discuss how MASTERFILE manages your data files.

You will begin a MASTERFILE session either by loading a file from disc, or by creating a new file directly. Throughout the session, the file processed will reside on the RAM disc, which can be thought of as another very fast disc drive. At the end of a session, or when required, you will SAVE the file onto a real disc. Until this stage, the changes you have made to your records cannot be said to be permanent.

Data references and data names are stored in a special record near the start of your file. Report format specifications are also stored as special records, following the data names. In fact, precisely where and how these special records are stored is of no concern to the user, except to impress that when a FILE is saved or loaded, all its associated data names and formats are saved or loaded with the data proper.

The MASTERFILE program is kept as a separate entity from its files. Once the program is loaded, any of its files can be loaded or saved on demand, using MASTERFILE's save/load menu options. When a file is loaded, any file already loaded is instantly forgotten - unless the MERGE or IMPORT options are used. MASTERFILE has its own built-in disc catalogue facility, and offers disc file erase options so that "housekeeping" can be done all from within the MASTERFILE environment. This need not be limited to MASTERFILE files.

Summary of terms described above

FILE : collection of similarly-structured data records.
 RECORD : group of associated pieces of data
 FIELD : unit of data within a record
 DATA NAME : description of a field
 DATA NUMBER : number used to refer to a data name or field
 FORMAT : specification of how to display your records
 FORMAT IDENTIFIER : number (0-9) which identifies a format

Designing your files

The best start you can make to designing the system for your needs, is to switch off your PCW machine.

Then try to summarise what you want to use the filing system for. Many people find that the discipline of setting down a list of expectations is helpful. So for instance, let us say that you have recently inherited a coin collection, which you have decided to catalogue and, if the fancy takes you, extend.

You will certainly want to record details of each coin - perhaps a coin catalogue number, the year of issue, the face value, the coin's condition. Is there anything else? What about its current value? Or if you are extending the collection, do you want to record details of the dealer from whom you bought a given item?

Only you can decide.

You've done that, so now to consider how you want to display the data. Despite the ease with which MASTERFILE allows you to create and amend layouts, you are advised initially to draw roughs of your plans for displaying and printing. Central to this is the order in which you want your records to appear.

We have established that MASTERFILE's unit of disc storage is a FILE. Since the whole file must fit on the RAM disc, the capacity of any one file is limited to RAM disc space rather than real disc capacity. MASTERFILE can use all the RAM disc available on your Amstrad PCW machine.

An individual FIELD can contain between 1 and 254 characters of data, and furthermore, all fields are VARIABLE-LENGTH. This is quite unusual among filing systems. The main advantage of variable-length fields is that there is no wasted space. There can be up to 84 fields per record, and since all fields are variable-length, so too are the records. Maximum record length is about 2K (actually 2047 characters).

Another attribute of MASTERFILE is that not all fields are compulsory. For example, if you need to store extra "Notes" against a few records, then you can do so using a field which need not be present in the other records of the file. This is all in stark contrast to direct-access systems where the maximum field length must be predetermined and allocated for every record. These economies indicate that MASTERFILE manages file space much more efficiently, and therefore effectively than traditional CP/M counterparts.

An overwhelming advantage of MASTERFILE's RAM-based file method is that of sheer speed of search and display. And wear and tear of the disc drive and discs is minimal.

The maximum number of fields in a record is 84, more than enough for most applications. In practice, between 3 and 12 are more usual. Each field may occur only ONCE per record.

Each field is known by its DATA NAME. A data name is a word or short phrase which describes the data, for example "Customer name", or "Address" or "Invoice number". Associated with each data name is a number, called the DATA NUMBER. For example, "Customer Name" may have a data number of '01'. The purpose of a data number is to refer unambiguously to a given data field.

One of the many features of MASTERFILE which sets it apart from lesser filing systems is the ability to present your data in a variety of ways, and in several different ways even on the same file. The term we use to describe the style and content of the displayed data is REPORT FORMAT, although FORMAT will suffice.

Each format is designed and specified by you, the user. You tell the program about the general layout - such as how many lines to reserve for column headings - and then, the data fields which you wish to show, and how they are to be shown - e.g. left-justified or right-justified, column-totaled, etc. Since you can have several different formats used in a file, each format has to be identified with a FORMAT IDENTIFIER.

With menus and cursor controls, you design the display as you wish it to look. The graphical effects available - ruled lines, panels and boxes, allow professional presentation of your data. And you can change them at any time to accommodate changes to the structure of your data (new DATA NAMES, and so on).

Examples to help you

The examples provided have been conceived to give you ideas on how to use MASTERFILE to full advantage.

Example 01 gives a simple realisation of a computer-based book collection. A single file is keyed on Author. This example can be used to illustrate admirably the use of Menu 03 [K] to sort the displayed output (up to 400 records) on any field present in the primary file.

Example 02 shows a more ambitious and powerful rendition of the collecting application. Here, a record collection is displayed using two secondary files - one for composer and one for performer. The primary file is keyed on the record manufacturer's number.

Example 03 is analogous to Example 02 in terms of file use, but the application is different - this time, it's a sales contact recording and diary system. Two secondary files, one for customers and one for products, are linked via the primary file, which is in date of call sequence.

There are other example files provided with MASTERFILE 8000. Full details can be found in the file XFILES.MFC.

Size Considerations

The maximum file size is governed by RAM disc size. For the Amstrad PCW 8256, this is 110K. A primary file on RAM disc comprises three separate CPM files - formats, data and index. All disc space accounting is done in units of 1K (1024 characters).

Typically, 2K needs to be set aside for Formats. Data, both for keyed and unkeyed files, is stored in two parts. In addition to the data keyed, allow 8 characters per record plus 1 character for each data name. Dates are stored in a compact 3-character internal form.

Load the example files one by one, and see the space they take, using menu 01 [M].

If you are using relational files, do not forget to allow RAM disc space for any secondary files which your formats may reference.

When you save a file, the RAM disc components and other system information are stored in the resulting disc file. First, essential control information, such as which format was in use, record totals and so on, head the file. Then the list of data names, followed by the formats, the index, and the data. There may be a slight disparity between the total space on RAM disc and the real disc counterpart. (See Chapter 4 for a fuller discussion of the SAVE function).

You need also to consider the most helpful order for you when adding, amending or erasing fields and records. For a coin collection this could be a catalogue number, or the year of issue, or, for collections which cover more than one country, the country.

MASTERFILE 8000 files are either keyed or unkeyed. KEYED means that the first data name is taken to be the field on which a file is sequenced. UNKEYED means that the order of the data in the file is as you enter it.

Once a file has been created, it can be used in either of two roles; as a PRIMARY file, or as a SECONDARY (also called REFERENCE or LOOK-UP) file. A primary file is the one LOADED, and whose formats are used when you enter display mode (menu 01 [D]).

A Secondary file is one referred to in the format of a Primary file, which causes an automatic look-up on the Secondary file, to find the requested data. Secondary file facilities, while reducing the volume of keyed data by allowing you to centralise common information, are entirely optional - their use is not obligatory in any way.

KEYED or UNKEYED files. Which to use where ?

Generally, if the sequence of your data matters to you, then you will probably opt for keyed files. This has a number of advantages. It allows all your files to be used as secondary files, if you wish. Display and printed output will be in ascending key sequence. And Menu 03 [P] can be used to locate any point in the primary file.

On the other hand, unkeyed files come into their own when the data you wish to record has no obvious key, and therefore no apparently useful sequence. Example 06 shows an unkeyed inventory of capital assets. New records can be inserted at any point in the file, so you can determine the order in which they are displayed as you insert. If you wish to group unkeyed data within headings, then you can create a file of headings which you then refer to in your format. (See Chapter 9. Relational Headings).

Displaying in more than 1 Sequence.

Unless your file is unusually large, then you can sort the data for display or printing using menu 03 [K].

Larger files must be re-indexed to reflect the required reporting sequence. This is accomplished by exporting the file, specifying the fields in a new order. On importing the exported file, the new key will be the first field encountered in each record. See Chapter 4 for detailed examples of this facility.

This Chapter tells you how to Load and Save files, Import and export data for use in other systems, and describes the functions which MASTERFILE provides to assist you in these tasks.

Disc Drives

Amstrad PCW computers have a RAM disc (Drive M), and either one or two disc drives (A and B). With certain exceptions, described later in this Chapter, the RAM disc is reserved for MASTERFILE use.

You can switch between Drives A and B as you wish (see below). The drive currently available for use is always shown in the bottom left hand corner of the Control Panel.

File Naming Conventions

MASTERFILE 8000 runs under CP/M, and file specifications therefore follow CP/M conventions. For those so far unfamiliar with CP/M, a file specification is a means of identifying a file to a program. It comprises three elements:

- * A drive identifier followed by a colon [:], e.g. 'A:'
- * A filename, up to 8 characters, followed by a full stop [.] , e.g. 'MYFILE.'
- * A filetype, up to 3 characters, e.g. 'COM'

MASTERFILE does not make use of CP/M password facilities, which also form part of a full CP/M file specification.

Loading and Saving Files

When starting a MASTERFILE session, you may either create a new file from menu 01, or load a file from disc. Chapter 5 gives details on how to create a new file. When you have finished your file changes, you will usually wish to store the changed file on disc.

All files are saved using the filetype 'MFC', where 'MF' stands for 'MASTERFILE' and 'C' means 'current version'. If you are saving a file under the name used to load it, then there will perhaps be a file of the same name and filetype on the disc. In these cases, MASTERFILE renames the old filetype to 'MFP' - 'P' for 'previous', and then saves the current file using filetype 'MFC'. If there was already an 'MFP' file for this filename, it is erased. By these means, MASTERFILE 8000 automatically preserves the previous version, in case you need it. If you need to keep more generations of previous versions, RENAME the file(s) using a CP/M utility, or use a different disc.

Secondly, the merge file and the primary file must have different names. Thus, one cannot load a file, and then merge it into itself. (But if you save it under a different name after loading, then you can).

Thirdly, each file must have the same number of data names. Usually, the data names will be of the same type (character, date, and so on). The files must both be either keyed or unkeyed. So attempts to merge an unkeyed file into a keyed file will be rejected.

For keyed files, all records are inserted into the primary file in key sequence. For unkeyed files, records are added onto the end of the file, in the same order as they appear on the source file.

While loading the file to merge, the legend

< -- Reading from disc -- >

will appear in the control panel. When the record insertion stage begins, a different legend

< -- Merging -- >

will replace it.

If, while merging, MASTERFILE runs out of RAM disc space, the primary file is always left in a useable state. This is because space is checked before every file change.

Import-Merge ASCII file - menu 02 [I]

The import is a special form of merge, so it needs a primary file into which to place records. In conjunction with the Export option, you can change the key of a file, or read in data from other programs and packages (MASTERFILE III, for instance).

The first prompt

< Give name of file to import >

allows you to enter a full file specification of up to 14 characters. You will then be asked:

< How many fields per import record >

The number you enter must not be greater than the number of fields (datanames) on your primary file.

< Record separators Y/N >

If there is an extra Carriage Return and Line Feed pair between each record, answer [Y]. Otherwise, answer [N]. If you are importing a previously exported file, answer [Y].

Switch drive A/B - menu 02 [D]

For two drive systems, this option will toggle between A and B - you can see the result of the change in the control panel. For one drive systems, use of this option is ignored by MASTERFILE.

Load a file - menu 02 [L]

Loading a file is equivalent, in many ways, to resetting the system. If you were processing another file, and you want to keep it, then it should be saved before loading another file. Under such circumstances, MASTERFILE issues a warning message:

< FILE ALTERED - Do you want to save it ? (Y/N) >

Answer [N] if the file you have been using is of no further use to you. Answer [Y] if you wish either to SAVE the file, or resume processing.

While the loading is taking place, a message will be displayed in the control panel:

< -- Reading from disc -- >

You will notice that the control panel is refreshed with details of the file you have just loaded. In particular, the number of selected records will be the same as when the file was saved, and so will the format identifier.

When you wish to load a file, MASTERFILE will invite you to enter the name:

< Give name of file to load >

Key in the filename (not the filetype), and [ENTER]. If you wish to 'back out' - you've changed your mind, or pressed [L] mistakenly - just press either [STOP] or [CAN]. You will get a beep if you attempt to key more than eight characters.

Merge/Load - menu 02 [M]

This powerful feature allows you to merge one file from disc into the one you are currently using.

The MASTERFILE merge is in two stages. First, the selected file is read from your disc onto the RAM disc, exactly as for the LOAD (described above). Then each record is inserted into the file you are currently using.

There are a number of necessary restrictions governing what can be merged into what.

First, there must be a primary file to merge into. This will either have been loaded via menu 02 [L], or have been created new via menu 01 [N]. An attempt to merge into nothing is ignored by MASTERFILE.

resulting export file. The '&' represents the character nominated by you in the customising program MF8000CU.COM. '&' is the setting unless you change it. The 'A' is a field identifier generated by MASTERFILE, starting with 'A', next one 'B', then 'C' and so on. If you wish subsequently to import the file, answer [N].

The next question is

< Surname Shuffle ? Y/N >

This sounds like a dance, but it isn't. You will recall that MASTERFILE allows you to use the '<' to indicate a rearrangement of a field on display. Thus, you key

Spilligan< Mr Mike

which indexes on the surname. On display, the field will appear

Mr Mike Spilligan

The question above is asking which form you would like on the export file. Generally, you will reply [Y] if you wish to export to a word processing package, and [N] if you wish subsequently to import to MASTERFILE.

< Line-breaks: B=Blank C=CR Other=n/c >

To allow you control of address formatting, MASTERFILE provides the line break character, the underscore [_]. This causes an automatic change of line, an invaluable aid for label addressing and so on. To change each underscore to a space, enter [B]. To replace each occurrence with a Carriage Return followed by a Line Feed, an ASCII convention, enter [C]. Press any other key to preserve the underscores. This last option is the one to use if you are going to import the exported file.

< Give name of ASCII export file >

Enter the filename. You may use the full CP/M file specification if you wish (drive:filename filetype). If you decide that you don't want to write a file, you can escape with [STOP] or [CAN].

MASTERFILE inserts an extra Carriage Return and Line Feed after each record, and an End of File marker (the CP/M standard hexadecimal 1A). This may be of interest to those who wish to use MASTERFILE data in other programs or packages.

Re-indexing a File using Export/Import Functions

If you wish to change the key on which a file is sequenced, you can achieve this by exporting the data, and then importing the exported file. This works because you can export data fields in any order you wish. On import, the first data field met is assigned to the first data name, which is always the key on which a file is sequenced. An example illustrates:

MASTERFILE will then merge the import file into your primary file. If there are less fields per record on the import file than on the primary file, then empty fields will be created for those absent from the import file.

Export an ASCII file - menu 02 [E]

There are two major reasons why we may wish to export data. First, we may wish to use our MASTERFILE data with a word processing package such as PROTEXT or TASMOR. Secondly, exporting and then importing allows us to change the key of a given keyed file.

The export dialogue starts with

< Give data number, ENTER if all or no more >

and the data names associated with the primary file are displayed.

If you wish to export each field of each primary record, in the same order as they are currently, then just [ENTER].

As you will probably recall, the first dataname of a keyed file is always the key field. So if you want to change the key to another field, now is your chance to do so.

Consider a file with three fields, indexed (keyed) by customer. We want to re-index by invoice number, which is let us say, the third field. We do this by exporting a file with the third field named first. The unabridged dialogue is

< Give data number, ENTER if all or no more >

3 [ENTER] ;New key field on import

< Give data number, ENTER if all or no more >

2 [ENTER] ;Another field

< Give data number, ENTER if all or no more >

1 [ENTER] ;The 'old' key field

< Give data number, ENTER if all or no more >

[ENTER] ;No more fields

Re-indexing is discussed further later in this Chapter. The next question is

< Data Identifiers ? Y/N >

Data identifiers are useful when you are exporting data to word processing packages. MASTERFILE allows you to tailor data to confer maximum flexibility. If you answer [Y], then a data identifier in the form '&A' will prefix each field on the

Save always writes the disc file with filetype 'MFC'. If there is already an 'MFC' file with the same filename on the disc, it is first renamed 'MFP'. If there is also an 'MFP', it is deleted.

The save reorganises the file as it writes to disc. To understand the process, we need to know a little more about how file changes are applied.

Both keyed and unkeyed files exist on RAM disc as an index file, and a data file. The index record contains the disc address of the data to which it refers. When a change is made to the RAM index file, the change is applied immediately, and if necessary, the complete index file is rewritten. This happens so quickly that you will hardly notice it. Changes to the data file are handled differently. If data is added to a data file, say while replacing a record, then the record is always added to the end of the data file. The related index record is then changed to 'point' to the new data disc address. The old data is not deleted from the data file, but because the index record no longer 'points' to it, to all intents it isn't there.

It is the same with record deletions - the index record is deleted from the index file. Because the data record has nothing pointing to it, it will not be displayed again.

The MASTERFILE save ensures that only those data records 'pointed' at by index records are written to disc.

The amount of space reclaimable in this way is shown when you list the files on RAM disc - see menu 01 [M].

We recommend regular SAVES of your primary file for two reasons. First, it's safer. Accidentally switch off your machine, and the RAM disc is cleared. Secondly, by saving regularly, you free space on your RAM disc for more data, and incidentally, improve the speed at which your data is displayed.

The following messages may appear:

```
< Done. > ;Save completed successfully
< Disc I/O error >
< Not enough disc space >
```

Save partial file - menu 02 [P]

This is similar to the full save (menu 02 [S]), except that only selected records are saved. The resulting file on disc can be loaded as a primary file, in exactly the same way as a fully saved file can. In addition, you must enter the filename - just pressing [ENTER] does nothing.

Assume a file with four fields, keyed on customer name. Your list of data names would look like this:

```
01 Customer Name
02 Customer Address
03 Post Code
04 Purchases to Date
```

You wish to re-index the file, so that it is in Post Code order.

First, export the file, ensuring that the first field exported is 03 - the Post Code. Then the other fields, for instance 01,02, then 04.

Set up a new keyed file, with the following data names:

```
01 Post Code
02 Customer Name
03 Customer Address
04 Purchases to Date
```

Then import the exported file. The new file will be built in Post Code sequence.

Instead of setting up a new file, with its associated data names and formats, you can always SAVE a file which has no records in it. Do this by unselecting all records (Menu 04 - [E] followed by [I]), and then request a partial save (Menu 02 - [P]). You can then LOAD this file before importing, instead of creating a new one.

Save the file - menu 02 [S]

This option writes all the primary file to the disc in the drive currently selected. If you wish to save only the selected records, use menu 02 [P], described later in this Chapter.

A new disc must have been formatted by DISKIT before you SAVE a file onto it. Files written to by MASTERFILE can be used by any other CP/M programs.

You can also select this option directly following a CAT/DIR operation.

The dialogue starts with the legend

```
< Give save name or Just ENTER >
```

A filename (up to eight characters) followed by [ENTER] may be given. If the file you are saving has been created from scratch, this is where you give its name. You may also just [ENTER], in which case the name in the control panel will be used instead.

As with the LOAD, you can back out at this point by pressing the [STOP] or [CAN] keys.

In this chapter we describe how to create a new file from scratch. A central task is to allocate data names to your fields, and decide which data attributes (character, numeric, date) are to be used.

Data Names and Numbers

A data name is a word or short phrase, up to 22 characters, describing a field. For example, we might use data names like:

```
Customer name
Address
Account ref
Date of invoice
Telephone
```

Each data name is given a number: 01 for the first, 02 for the second, and so on. We use these numbers for brevity when building screen formats or when exporting data.

Creating a New File

In order to create a new file you must decide whether or not the file is to be keyed, what data fields it is to have, and what the data attributes are. You start with menu 01 [N], which prompts:

```
< Is file to be keyed ? Y/N >
```

Reply [Y] if the file is to be keyed; any other response is taken to mean that the file is not keyed. See chapter 3 for a discussion on the merits of keys.

Next you are asked:

```
< How many data names ? >
```

Reply with any number 1-84, or 1-63 if using a 25-line screen. MASTERFILE immediately displays them as '(spare)', and invites you to alter them.

Altering the data names

You can alter a data name or its attribute, at any time, via menu 01 [V]. This lists the names and lets you select any name under cursor control, to be re-defined.

The data name review mode is also entered automatically as soon as you have initiated a new file via menu 01 [N] and stated how many data names there are. Initially, every data name is '(spare)' and so you must alter at least one of them to a proper data name. For keyed files, do not leave the first name as reserved.

You cannot erase or insert a data name. But you can re-name one, for example to un-reserve a '(spare)' name just by re-spelling it. You may also change the attribute; but note that this can cause minor problems when changing to/from date [D] attribute if there is already data stored in this field. This is because dates are not stored in ASCII.

Erase a file - menu 02 [ALT E]

Invoking this option gives the prompt:

```
< Erase which files >
```

Type the filename followed by a full stop [.], then the filetype. Successful completion is indicated by the appearance of the CAT/DIR screen. Newcomers to computers will probably find it easier to erase files by calling up the CAT/DIR first, positioning the cursor over the file to be deleted, and pressing [ALT E].

Error Messages

This section lists the error messages which you may encounter while using the MASTERFILE facilities described in this Chapter.

```
< File not found >
```

The filename with filetype 'MFC' or 'MFP' could not be found on the drive indicated in the control panel.

```
< Not a MASTERFILE 8000 file >
```

The file specified by you did not have a valid filetype.

```
< Disc I/O Error >
```

This tells us that something is wrong, but we're not sure what. It is a result of an error while trying to read the data from the disc. It can be caused by trying to use an unformatted disc, or a discless drive, or a physical defect in either drive, disc or both. With a little care, the MASTERFILE user is unlikely to encounter this message.

```
< Files do not match, cannot merge >
```

You have accidentally attempted to break one or more of the rules governing the merge. Reread the merge section in this Chapter for details.

```
< Duplicate file name >
```

You have tried to merge a file with the same name as the primary file.

```
< Not enough RAM disc space >
```

The RAM disc is full, or nearly so. If this occurs during the merge, then the primary file will contain all the records up to the point of failure, which can be used without further ado.

Data Attributes

As well as choosing a data name for each kind of field, you must also say which of three attributes the field has. The three are:

CHARACTER probably the most commonly used.
 NUMERIC for quantities and money values.
 DATE for efficient storage and editing of full dates.

All about Dates

Dates are a very important kind of information, and suffer from the fact that people and computers have quite different needs where dates are concerned.

If you need only to record the year (e.g. book publication date, vehicle registration date) then there is no problem: just use two characters such as '86' give the field a CHARACTER attribute.

To hold more precise dates, such as invoice date, renewal date, then you probably need to store day, month and year. And here is the main problem. People are more comfortable with '14th February 1987' while computers find it easier to process '870214'. Consider the task of evaluating a date in terms of whether it is earlier than or later than a particular date: treating the date as a pure number, with the year first, makes the most sense.

MASTERFILE offers a compromise solution. If you give data a DATE attribute then the following processing is brought into operation.

a) When you enter or alter that field the program makes a cursory validation and BEEPS a warning if the keyed data looks unsuitable. The program checks that your text starts with a day number 01 to 31, and that the rest of the text starts with the first three letters of one of the months. If the last two characters are numeric, then this is taken to be the year in this century; otherwise if you omit year, the last keyed year is assumed.

b) Examples of valid dates, and how they are re-displayed:

1Jan88	01 Jan 88
01 JAN 1988	01 Jan 88
12AUGUST1983	12 Aug 83
14 Feb 87	14 Feb 87
31FEB	31 Feb 87
25 December 1896	25 Dec 96
1Separation100	01 Sep 00

c) Examples of invalid dates, and how they re-display are:

1st January 1983	1st January 1983
Aug 86	Aug 86
1984	1984
32June86	32June86
Aug 1st	Aug 1st

If you really need to add more names after a file has been established, and you have insufficient reserved names, then you can make use of export to save the data as ASCII, start a new file with an expanded set of data names, then import the old data. You will have to re-define the screen formats however. Import and export are described in chapter 4.

To select a data name to alter, use [LEFT] and [RIGHT], then press [CENTRE] when the cursor is over the target name. You are then asked:

< Give new data name >

Enter the new data name, up to 22 characters in length. Remember that for a keyed file, data name number 01 is the key field which controls the sequence of the file. Next, supply the attribute when asked:

< Attribute: C (char) or D (date) or N (num) >

Choose [C] if the field is to have character attribute - probably most of your data will be like this.

Choose [D] if the field is a date of the form 'dd mmm yy' in order to take advantage of the date logic built into the system. If the field is also the key field, then a date attribute will ensure the file is in true ascending date sequence.

Choose [N] if the field is pure numeric and you wish to be able to use the numeric format options, such as currency notation, thousands commas, and column totals. If the field is also the key field, then if numeric the file will be in proper numeric ascending sequence.

When you add a new record to the file, data will be prompted using the data names in data number order, but omitting any reserved names. The process of adding or inserting new records is described in chapter 7.

Reserved Data Names

A reserved data name is simply one beginning with an open bracket, e.g. '(spare)'. The space penalty for reserved data is just one byte per record per reserved name. When you create a new file, all its data names are reserved and of course you must un-reserve those you wish to use.

Reserved data names do not prompt for data when building a new record.

There is no direct way to change the number of data names once a file has been started. Hence the wisdom of reserved names.

