# Micro Viewdata

For 480Z Disc and
Network Systems

# User Guide

PN 15286

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# Preface

Micro Viewdata is a database designed for easy retrieval of information. We expect it to be particularly useful to teachers of English and other languages, general studies, communications, computer sciences, art and design.

Micro Viewdata will allow you to:

- compose and edit pages of information in viewdata format
- store pages of information on a disc in viewdata format
- recall pages of information from disc and display them on a screen
- create a local electronic magazine, database, noticeboard, or information system
- devise structures and routing procedures for organising access to the information in databases
- develop artistic and creative skills relating to information design and presentation
- develop language (verbal and written) and communication skills
- gain an understanding of the viewdata/videotex formats

You will require

either: Research Machines 480Z Disc System (Standalone or Shared)

- 64K memory
- HRG and RGB
- RGB monitor
- MD1, MD2, MQ1, or MQ2 Disc Unit

or: Research Machines Chain or Chain 64 Network

- Network server
- up to 16 (Chain) or 64 (Chain 64) 480Z stations

# Contents

# Chapter 1
# Introduction

The term videotex embraces two new ways of communicating: *teletext* and *viewdata*. Pages presented by both systems appear similar, but the way in which you can obtain information and the structure of the pages are different.

The teletext systems present pages of information that cycle or turn in a predetermined sequence. You do not control the sequence. The number of pages in a teletext system is limited by cycle time, that is, the time taken between broadcasts of the same page. If the cycle time is unduly long you can end up waiting a long time to see the page that contains the information you want. Teletext pages are broadcast alongside television pictures rather than via the telephone. An adaptor allows you to decode the signals which are concealed on the picture.

Viewdata systems are really collections of databases. Each database is a collection of pages of information. You can ask to see a particular page, and it will appear on your screen almost immediately. To allow you to find information quickly and efficiently, a number of routes and connections within and between pages are provided. Thus if you are using a viewdata system you can quickly consult pages in any order required. Pages may be transmitted by cable but increasing use is being made of optical fibre and satellite communications links.

The most widely-known viewdata system in the UK is Prestel, which is operated by British Telecom. Prestel acts as a host to a wide range of independent information providers or companies. Each company chooses what information it wishes to offer to the public, and levies charges only when customers consult their pages. Such

systems are increasing in number. Not only are there the large public systems like Prestel but also smaller systems developed by individual companies or organisations. Many of the facilities are useful in classrooms, in specific subject areas, in general studies, and in school administration. There are applications in art and design, the development of information skills, and in internal school communication systems.

## Micro Viewdata

Micro Viewdata provides a simulation of viewdata contained entirely within your own micro computer system. You can create, edit, or compile your own viewdata database, which contains the information that you need for your own particular purposes. This database can be made available to a number of users simultaneously over a Research Machines Chain Network (up to 16 users) or a Research Machines Chain 64 Network (up to 64 users).

Sample pages and frames are provided on the software distribution disc to demonstrate the features of the system. Exercises are also included in the handbook to help you understand the different ways to design and organise your pages.

The suite of programs included in the package allow many of the effects and operations of a commercial viewdata system to be recreated. Micro Viewdata allows you to design individual pages of information displayed in colour on backgrounds of different colours. You can use double height and flashing characters, and can conceal and reveal parts of the display. Micro Viewdata also allows you to specify your own routes to guide users through the pages of your database. When you come to view a database you can do so using the same key presses as the Prestel system.

If you have a modem, Micro Viewdata will also enable you to hook into the Prestel system and view any of the pages in the massive Prestel database.

When you create your own databases, you will be able to use a number of powerful features. Pages may be organised, moved from one database to another, rerouted, copied within the database, saved onto disc, and printed on paper. Also frames captured from Prestel can be incorporated into your databases using the jotter facility.

You can also create view-only databases which other users can look at, but cannot alter in any way.

Micro Viewdata is therefore a versatile learning aid with applications across curricular, age, and ability ranges.

## Educational benefits

Micro Viewdata is not simply a scaled down version of a viewdata system, for it provides great scope for creative work. In choosing and organising the information to be displayed on each frame a great deal is learned about the subject matter itself. Studies of how we learn show that establishing relationships between concepts greatly aids retention, subsequent recall and understanding. Trial use demonstrates a whole range of educational benefits. These are:

- language development through sentence construction, precis, grammar, style and sequence
- synthesis, interpretation and organisation of information
- research and the use of other resources to find information which is checked during database creation

- the development of imagination, art and design skills as pages are created
- the overcoming of writing difficulties through the creation of clear and attractive pages
- the development of verbal skills through group composition
- ordered and logical thinking as pages are structured into a database
- attention to detail and precision
- understanding of viewdatabase concepts and structures.

## Applications

Micro Viewdata can be used wherever information is required in teaching or learning. Examples of specific subject uses are:

- history
- geography
- science
- mathematics
- environmental studies
- computer science

## Preknowledge

Before using Micro Viewdata you should try to see a demonstration of a viewdata system such as Prestel. This will introduce you to the the basic ideas involved in using such systems and to the effects that can be created.

## The meaning of some words

You should be familiar with the following terms and their meanings:

- *Information*: This is stored by the computer system for subsequent display. It may consist of text, numbers and punctuation, together with various graphic shapes which can be joined together to form a kind of mosaic picture on the screen. A list of available shapes is shown in appendix B.

- *Page* and *frame*: These are key concepts in viewdata systems. A page is a unit of information which has a unique number. The number may range from 0 to 999 999 999. For example the following refer to pages:

  4

  23

  5 009

  736 106

  451 209 671

  Not all of these numbers will be used within one database, but it is convenient to link pages together as shown in figure 1.1. Thus on some occasions all 9 digits may be needed.

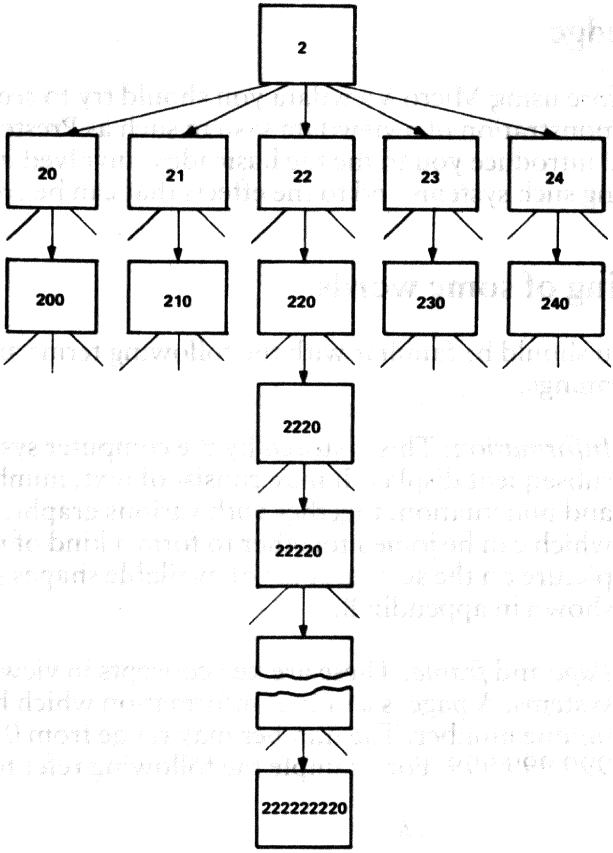



*Figure 1.1 Families of Pages Linked Together*

It is often necessary to put more information on one page than can be displayed on a single screen. To allow for this each viewdata page can be made up of a number of frames, the maximum being 26. Frames are identified by a small letter from **a** to **z** after the page number. For example, the following refer to frames:

**4.a**

**23c**

**5 009v**

**736 106z**

**451 209 671g**

If a particular page, for example page 4, consists of only 1 frame this will be labelled 4a. If another page, for example page 23, consists of 3 frames these will be labelled 23a, 23b and 23c. This is illustrated in figure 1.2.

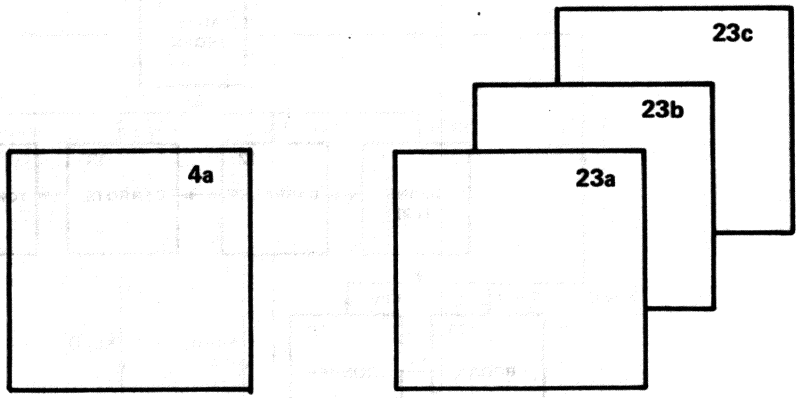



*Figure 1.2 Pages, and the frames in them*

When you come to look through viewdata pages you will initially be presented with the **a** frame. Only after viewing this frame can you look at **b**, **c** etc.

- *Route*: This is a logical path or link from one page to another. The example shown in figure 1.3 shows how several pages could be linked together to provide information about the nutritional values of vegetables. You are first presented with the main index of vegetables (page 1), from which you can select one of four options by pressing the keys 1,2,3 or 4. If you press 1 (beans) you then have to specify whether you want information about broad beans or runner beans. It is important to note that after viewing one screen of information you are allowed either to return to the main index (page 1) or to view further information. The keys to perform these tasks are used consistently; in the example 0 always returns you to page 1.

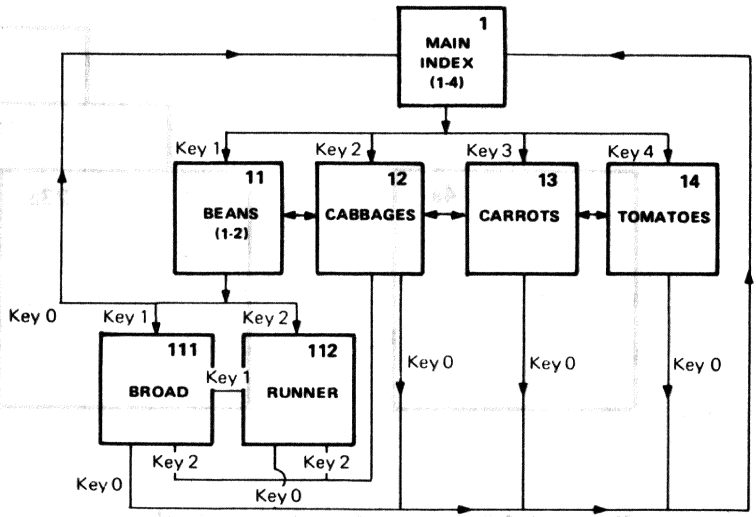



*Figure 1.3 Information is organised by linking pages*

- *Database*: A collection of information (often stored electronically) which can be sorted in some predefined way. The computer operated by DVLC, in Swansea, for example, contains a large database of information relating to every motor vehicle in the UK. Millions of pieces of information can be manipulated and sorted to find out who owns a particular car.

You should also be able to handle a floppy disc safely. Although floppy discs may appear flimsy, with reasonable care they will last for a long time. The Micro Viewdata software distribution disc should always be write-protected. You should make a copy of it, as described in the next section, and use this rather than the original in your activities. The computer and disc drive should always be switched on before the disc is inserted and *never* switched off *before* a disc is taken out of a drive. Do not remove the disc if the drive light is on. When a disc is not being used, put it back in its paper envelope. You should avoid bending the disc when placing it in the drive, and the magnetic surface should not be touched.

## Notation

The following conventions are used throughout this handbook to help you press the correct combination of keys to obtain the desired effect. A study of the keyboard layout would be of benefit at this point.

**<RETURN>** means press the key marked 'RETURN'. In the same way **<DELT>**, **<ESC>** and **<CTRL>** refer to the keys labelled 'DELT', 'ESC' and 'CTRL'.

**<SHIFT>** means press either of the keys marked 'SHIFT'. This key is always used in conjunction with another key or keys.

**<SPACE>** means press the space bar.

<LEFT> means press the key on the right of the keyboard that has an arrow pointing right on it. In the same way <UP>, <DOWN> and <RIGHT> refer to the three other arrow keys.

<F1>, <F2>, <F3>, and <F4> refer to the four function keys situated on the right of the keyboard. Press the appropriate key once. These keys are often used together with a numeric (number) key *but not at the same time!*

<SHIFT/F1> means press both keys at the same time. Press <SHIFT> and, while holding it down, press the function key <F1>.

<F1 1> means press the function key <F1> and then press 1. Do *not* press them simultaneously.

(Where a number of keys are to be pressed in sequence, this is made clear in the text.)

Throughout this manual, commands that you type in at the keyboard are shown in a special typeface and in upper case, to help the presentation. Micro Viewdata, however does not distinguish between upper and lower case letters, and it does not matter which you use for the commands.

# Chapter 2
# Getting Ready To Start

Installing Micro Viewdata is different according to the type of 480Z you have. The starting point is the same, however. This is the Micro Viewdata distribution disc containing all the Micro Viewdata software and the sample database. The first thing you have to do is make a copy of this disc and put the original in a safe place.

Micro Viewdata is a set of programs that are each used as and when needed. Consequently, Micro Viewdata needs to know where to find them. The distribution disc is set up so that it can be used immediately on a single-drive, double or quad density system. Later on you will almost certainly consider reorganising this arrangement to suit your particular requirements and hardware, especially if your 480Z has a dual-drive disc unit or a silicon disc. This is when you should read through the section about making a start-up file later in this chapter and find out how to reinstall Micro Viewdata.

## Preparing a master disc

The Micro Viewdata disc as supplied can be used as a system disc, but as it does not include an operating system, you may also have to copy one onto it (or it onto a system disc if you prefer) depending on the type of 480Z you are using. The steps to follow are:

1. *Copy the distribution disc onto a master disc.*

   Your 480Z User's Guide or Network Station User's Guide tells you how to do this if you do not know already.

If you have quad density drives, use **PIP**, as the distribution disc is recorded in double density format, to copy Micro Viewdata from the master disc onto a quad density disc that is to be used as the working Micro Viewdata program disc.

Otherwise use either **FASTCOPY** or **PIP** as you prefer.

In addition, it would be useful to have STAT.COM and PIP.COM copied onto this disc (side 2).

Lock up the distribution disc in a safe place, and use the copy from now on.

2. *Copy the operating system onto the master disc*

(a) If you have a single-drive 480Z disc system, run the utility supplied on the CP/M disc by RML to copy CP/M onto the master disc.

(b) If you have dual-drive 480Z or a network server without a winchester disc, you are advised to run Micro Viewdata on logical drives B/D. To make it easy to get started, the software is supplied with a start-up file designed to be used by any 480Z.

A simple procedure to allow you to use Micro Viewdata in drives B/D follows:

- Use the **ERA** command to delete the start-up file provided for running Micro Viewdata on drives A/C:

```
ERA STARTUP.CFG<RETURN>
```

- Use the **REN** command to change the name of the start-up file supplied for using drives B/D:

```
REN STARTUP.CFG=STARTUP.BD<RETURN>
```

You can now put the Micro Viewdata disc in drives B/D, set the default drive to B: (this is *essential*), and start Micro Viewdata as described in the next chapter.

(c) If you have a network with a winchester, you can copy side 1 of the master Micro Viewdata disc onto drive A (user 0) and side 2 onto drive C. (Alternatively, you can follow the procedure in (b) above, and then copy the software onto drives B and D respectively of the winchester.)

If your winchester is not partitioned into logical drives A, B, C, and D, for the moment you should use the SETNET utility to reassign the necessary logical drives to the physical drive A. (Alternatively, you could copy all the files onto drive A and refer to the description of making a start-up file, later in this chapter).

## Constraints on network users

If you are installing Micro Viewdata onto any network system, please note the following constraints on this version of the Micro Viewdata software:

- The program file VIEWDATA.COM must have its flag F1 set on. This is carried out when the network is in maintenance mode using the **SET** command as follows:

```
SET VIEWDATA.COM [F1=ON] <RETURN>
```

- This version of Micro Viewdata cannot be used as a common program available to a number of different users with different user numbers. Multiple users can use the same software and access the same databases provided that the software and database files are all present in the directory for a user number which is used by all the users.

Of course, separate copies of the software can be installed in different user number directories for use by different groups of users.

- The use of the EDITOR and the utilities called from the utilities menu is possible while other users are displaying the database being edited. More than one user can edit the same frame at the same time and *no warning* of this is given. The last copy of such a frame to be saved will be the frame that remains in the database.

- The main menu options to edit and create a database (options 2 and 4) are automatically supressed if the network operating system CP/NOS previously loaded into the 480Z is the version that supports the use of a silicon disc. You must load the version of CP/NOS that does not support a silicon disc before you can carry out database creation or editing operations. Do this by entering the NOSID command:

  ```
  NOSID <RETURN>
  ```

  (NOSID.COM is a network program normally available on drive A under user 0, and should be present on this drive with the attributes SYS and R/O).

## Ready for action

You are ready to start using Micro Viewdata. We suggest that you move on to the next chapters, which will lead you progressively through the various features of the system. Once you have mastered the basic features, you should return to this chapter and read through the remaining pages so that you can consider how to tailor Micro Viewdata to your precise needs.

The rest of this chapter describes how to make a start-up file and how to make a view-only database.

## Changing the start-up file

The Micro Viewdata software is supplied with its files organised so that any stand-alone 480Z or network station user can run it immediately and access the sample database that is supplied. This is provided that the viewdata software is installed as described previously. The supplied software includes a prepared start-up file for this reason.

If any of the Micro Viewdata program files or database files are required to be held on discs on other drives, the start-up file must either be rebuilt or modified accordingly. A new start-up file is created by running the separate program MAKESTUP. An existing start-up file can be partially modified by selecting the edit start-up option from within the Micro Viewdata EDITOR program.

## Files on the distribution disc

The Micro Viewdata distribution disc contains the following files:

Side 1

| | | | Remark |
|---|---|---|---|
| MVEDIT.COM | 45K | EDITOR program | |
| VIEWDATA.COM | 10K | Viewdata root program | (1) |
| NEWDBASE.COM | 11K | Database file creator | |
| DISPLAY.COM | 43K | DISPLAY program | |
| STARTUP.CFG | 1K | Start-up file drives A/C | (1) |
| LISTFRM.COM | 14K | Frame number list program | |
| EDITINDX.COM | 15K | Edits/creates a database index | |
| STARTUP.BD | 1K | Start-up for drives B/D | |
| VIEWHDR.COM | 9K | Database checking program | (2) |
| CAROUSEL.COM | 13K | Carousel editor program | |

Side 2

| | | |
|---|---|---|
| EDITSTUD.COM | 25K | Start-up file editor |
| DEMO.DBF | 38K | Sample database file |
| CAROUSEL.CRS | 1K | Sample carousel file |
| MAKESTUP.COM | 27K | Start-up file creation program |
| DEMO.IDX | 1K | Sample database index file |
| PRINTFRM.COM | 29K | Frame printing program |

Remarks:

1. Must be present on the default drive when Micro Viewdata is started; any start-up files on other drives are ignored.

2. Use as a standalone program to check that each frame in a database created on another system conforms to the frame format described in appendix G.

This configuration of files is designed for use with a 480Z with an MD1 disc drive, and while it is usable on other types of disc system, it may not be ideal. Some of the above files can be dispensed with if you do not intend to use the functions that they provide.

Should you require to move any of the files to other discs, the following points should be considered:

- On an MD1 system, separate discs can be used for program files and database files provided that they are considered to be on logical disc drives B or D when defining the new start-up file.

- On any dual-drive disc system (MD2, MQ2 or network server), all the files named above must be online.

- Any files defined to be on drive M: (the silicon disc) must be present in the silicon disc before the related Micro Viewdata feature is used.

## What the start-up file does

As its name suggests, this file informs Micro Viewdata what facilities are available and where to find them. It is created (or replaced) by running the MAKESTUP program. This program is separate from the Micro Viewdata system.

If you only want to change the database, carousel file, printer driver, or the display and editor frame headings, you can do this from within Micro Viewdata by using the edit start-up file option of the Utilities Menu. This is described in more detail in Chapter 11. If you want to make changes to how the software is to be kept on the discs and control who uses it, then you need to use the MAKESTUP program.

## The MAKESTUP program

This program is supplied on side 2 of the distribution disc, so it is run initially with the **A>** prompt showing by entering:

```
C:MAKESTUP <RETURN>
```

The program starts off by asking you to state whether the start-up file is for any 480Z, only the 480Z you are using, or only another specific 480Z.

Type **G** for the first, press **<RETURN>** for the second, and enter the 480Z's network address (in hexadecimal notation) for the third.

A 480Z's network address is set by the DIL switch on the rear panel and is used to identify each 480Z in a network or shared-disc system.

This facility allows the system manager to create a start-up file for each station in such systems and by this means access to "unwanted" facilities can be prevented as well as each station being associated with a different database file as would be appropriate.

If more than one start-up file is present on the disc, the one created specifically for the station number will be used. If the station does not have its own start-up file, the "general use" start-up file is used. Once you have selected the station, the following message appears on the screen:

```
Drive for STARTUP file:
```

Type in the logical drive on which you intend to store the resulting start-up file, and then press **<RETURN>**. The start-up file is effective *only* if it is on the default disc drive you use when you start Micro Viewdata and need not be on the same disc as any other parts of the Micro Viewdata software.

If you already have a start-up file on this drive, for the station specified, the message

```
Overwrite existing file (y/n):
```

appears. If you press **N**, the program ends with no new start-up file created and the original one remains unchanged.

If you press **Y**, the previous start-up file will be overwritten later on when you press **<F4>**. Meanwhile there follows a series of prompts asking you to give the logical drives in which you intend to insert discs containing the part's of the Micro Viewdata software named.

| Prompt | File Concerned |
|---|---|
| Drive for STARTUP file | STARTUP.CFG or STARTUP.nn |
| VIEWDATA | VIEWDATA.COM |
| CREATEDB | NEWDBASE.COM |
| MVEDIT | MVEDIT.COM |
| DISPLAY | DISPLAY.COM |
| LISTFRM | LISTFRM.COM |
| PRINTFRM | PRINTFRM.COM |
| EDITINDX | EDITINDX.COM |
| EDITSTUP | EDITSTUP.COM |
| EDITCRSL | CAROUSEL.COM |

At this point, you can prohibit the use of one or more of the above facilities for a particular 480Z in a network or on a copy of the viewdata software disc by omitting the drive name when filling in the list. If you simply enter

**<SPACE> <RETURN>**

the feature will not appear on the menu when the viewdata program is used. Otherwise, type in the drive where you want the system to expect the relevant file to be, and press **<RETURN>**. Note that if you make the EDITOR unavailable by pressing the space bar then **<RETURN>** after the MVEDIT prompt, then you will not be able to access the EDITOR. This means that you will not see the Editor Menu if you press ***910#** in the DISPLAY mode.

The next screen message is:

```
Terminal Available? (y/n)
```

This question is really asking you whether the station is equipped with facilities such as a modem and telephone that allow the station to act as a terminal to receive Prestel. This is described in Chapter 14. Answer **N** if you don't have this equipment, otherwise **Y** and give the type of modem you are using, if asked.

```
Everything OK? (y/n)
```

If you press **N**, the program goes back to the **drive for** prompts.

If you press **Y**, you proceed to the next phase of the MAKESTUP program which is identical to the edit start-up file facility that can be used *during* a viewdata session. This requires you to name the database that will be used whenever you *start* or *resume* using any of the programs in the Micro Viewdata package. A valid logical drive name *must* precede the database name.

It also allows you to rename the carousel file. The carousel file is used to display automatically some of the frames in a database, and is decribed in chapter 10.

In both cases, you modify the suggested responses **A:DATABASE** and **A:CAROUSEL** as appropriate. Again, a drive and semicolon must precede the name of the carousel file.

The printer driver is the name of a file supplied for a particular type of printer used to print viewdata pages. RML supplies one for the Epson RX/LX 80 series and one for the Anadex dot matrix printer. The first is called A:EPSONRX and the second is called A:ANADEX. Make sure that the name given corresponds to the printer you intend to use. Again, a valid drive must be specified for the printer.

The two entries Display and Edit give proposed headings for display as Information Provider headings while you are displaying or editing a database. These can be modified and you can use some of the Micro Viewdata editing commands for changing colour and using graphics; these are fully described in Chapters 4 and 5.

When you have finished making the necessary changes to the items on the screen, press <F4> to save the new start-up file.

When you use the Micro Viewdata System, you should ensure that all the Micro Viewdata files are where you have said they will be in the start-up file. Check this first whenever you can't get Micro Viewdata to work correctly, especially just after using MAKESTUP!

## View-only databases

There may be situations where you want other people to look at a database, but do not want them to be able to alter it in any way. This sort of database is called a view-only database, and this section describes how you create it.

NOTE: Your site licence for Micro Viewdata prohibits you from distributing copies of any part of this package to users on other sites, other than by special arrangement with Research Machines Ltd.

To make a view-only version of Micro Viewdata copy the files:

MAKESTUP.COM
DISPLAY.COM
CAROUSEL.COM
CAROUSEL.CRS (include this or any carousel file of your choice only if your view-only system is to include the carousel facility)

onto side 1 of a new disc. Also copy the database onto this disc. Put it on side 2. Run the MAKESTUP program to create a startup file for general use. Assume that the disc will be used in drives B and D so that there will be no need to copy CP/M onto it. When MAKESTUP prompts you

with the "Drive for..." message for DISPLAY and EDITCRSL, enter B and press <RETURN>.

The response to the prompt:

```
Terminal available? (y/n)
```

should be:

```
N
```

Insert the name of your view-only database with the logical drive name D. Give the drive and name of the carousel file if you want your users to use the carousel facility. Otherwise to blank the suggested name out. Change the display heading to the heading of your choice. Save the new startup file by pressing <F4>. Now erase (ERA) the file MAKESTUP.COM.

This view-only disc is now ready for use (and for copying). To run the view-only display version, tell the users to set the default drive to B, insert the disc, and enter:

```
DISPLAY <RETURN>
```

This command will call up the display program directly from drive B and display the first frame from the database on drive D.

## Improving the network performance

As stated earlier, it is not possible to create or edit a database using a 480Z network station running with the silicon disc version of the network operating system. If your 480Z is equipped with a silicon disc, we recommend that you use it in the CP/M-only silicon disc mode. This will give two advantages: the database you are working on cannot be accessed by other users until you have copied it

back onto a network server disc and the speed at which your station works will be dramatically faster.

To set up your system to work in this way, do the following:

1. Create a special startup file (use MAKESTUP) that defines all those facilities that you will use to be on drive A, including the database itself. You will need (as a minimum):

   VIEWDATA (10K)
   MVEDIT (45K)
   LISTFRM (14K)

   assuming that your database already exists, otherwise you will also need CREATEDB (NEWDBASE.COM – 11K). These, plus the startup file (1K) amount to either 70K or 81K leaving either 104K or 93K for the database itself. (You may want two databases or a jotter file if you need to copy frames into your new database.)

2. Next copy these files into the silicon disc (refer to your network station user's guide).

3. Isolate your 480Z from the network by entering the CP/M command.

4. Run Micro Viewdata – at the end of the session log back onto the network (in silicon disc mode, of course) and immediately copy the new or updated database onto a server disc.

# Chapter 3
# Looking at a sample database

The Micro Viewdata (MVD) system contains all the necessary programs for you to create your own databases and display their pages and frames. It also contains a specimen database which will introduce some of the features of viewdata systems. This section of the handbook deals with loading Micro Viewdata, calling up this database, and the commands you use to view it.

## Loading the Micro Viewdata system

*480Z Disc Systems*: Unless it is already in use as the system disc, place the Micro Viewdata system disk you created using the procedure described in the previous chapter in the disk drive (A/C) and close the door. Press **<CTRL/C>** to reset the operating system for the new system disc, or press **B** if you have only just switched on.

*480Z Shared Disc Systems*: It is only possible to use this version of Micro Viewdata on a shared disc system to *display* a database. If you want to edit or create a database, you will have to set the system to standalone mode rather than shared mode.

*480Z Network Stations*: Switch your network station on and log onto the network. Make sure that the Micro Viewdata software has been installed in the network server's disc storage. If your network supports the use of silicon discs, and, as you will later want to *edit* a database, make sure that you are using the non-silicon disc version of CP/NOS (the network operating system). If necessary, use the **NOSID** command to obtain this operating system, as described in the last chapter.

*All 480Z's*:
Make sure that the CP/M prompt is showing the current logical drive for the disc containing the start-up file and the root program (VIEWDATA.COM). Enter:

```
VIEWDATA
```

and then press

```
<RETURN>
```

## Looking at the database

The program will start by displaying the Micro Viewdata copyright screen. After a few seconds, or sooner if you press any key quickly enough, a new screen will appear asking you to select one of the displayed options by number:

(1) Display Viewdata Pages
(2) Edit Database
(3) Prestel Terminal
(4) Create a new Database

This screen is called the Main Menu.

*Note*: If you do not have the appropriate modem to use your microcomputer as a terminal to receive pages from Prestel, option 3 should not be used. The terminal software is included in this package and the only extra equipment you need is a modem which is available from a number of suppliers.

The purpose of options 2, 3 and 4 will be explained in due course. Since you are firstly going to look at the pages of the demonstration database to gain familiarity with viewdata, simply press:

1 (Display viewdata pages)

The introductory frame of the sample database (which is called **DEMO**) will appear as shown in figure 3.1. At the top left of the screen you will see **MEP Software**. This tells you that MEP was the organization responsible for supplying the information on your screen. This name will change as you look through the pages since the pages have been composed by several different organizations. Also on the top line is **0a**. This is the page number (**0**) and frame identification (**a**).

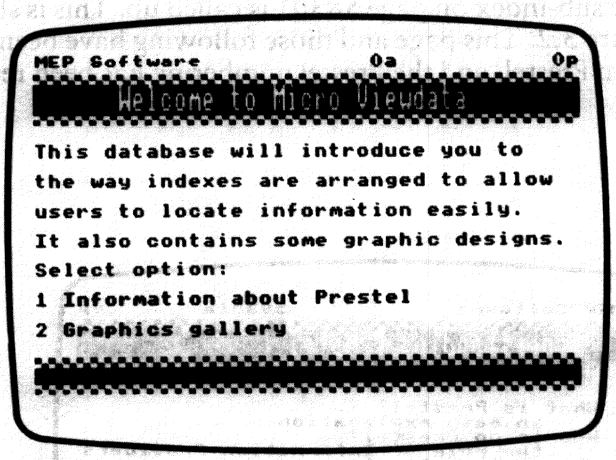



*Figure 3.1 First Frame in* **DEMO** Database

When you start looking through the database, **0a** is the first frame to be displayed. It serves to let you know what information the database contains and presents an attractive screen. It may contain the main index, as on this occasion. Here you have two choices. Pressing **1** selects a section entitled 'Understanding Prestel' while **2** presents you with some graphic designs. Press

2 (Graphics gallery)

The design shows you the striking effects that can be created using Micro Viewdata. When you are ready you can view the next frame by pressing either # or <F4>. When you press the <F4> key, you will see that the # symbol appears on your screen. Successive graphics frames can be called up by pressing either # or <F4>. When you reach the end of the gallery you will be able to return only to the main index, so press 0.

Now select:

1 (Understanding Prestel)

The sub-index on page 58301 is called up. This is shown in figure 3.2. This page and those following have been taken from Prestel, and the Prestel numbering has been retained.

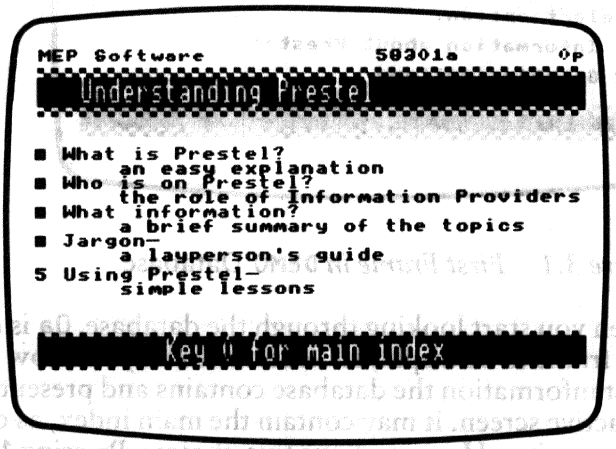



*Figure 3.2 Sub-index in Database*

You will be able to select only option 5. This lets you work through the lessons about using Prestel. The options which are unnumbered have been left for a later exercise in which you will add the necessary links or routes.

You should now work through the lessons. They will explain some of the features of viewdata systems and give you a practical introduction. Press

5

when you are ready to start. This will take you to page 58300 which introduces the lessons and offers you two choices. Pressing 0 will return you to the first page, and pressing 1 will take you to the first lesson.

Although the database designer could have offered you a choice of up to ten routes out of page 58300, she has made only two available. When you are designing your own database, you do not necessarily have to use all ten routes out of each page, corresponding to the keys 0-9. Notice the logical way in which the designer has used route 1 to take you to lesson 1.

Press

1

to obtain the first lesson. This describes the method of indexing used by both Prestel and Micro Viewdata, and shows a typical index. You have 2 routes from this page. You have the choice of pressing 0 to obtain the Prestel index, as before, or 2 to see the next lesson. Notice the consistency with which key presses are used on successive frames. When you are ready press:

2

You will be taken to page 583002 where the second lesson starts. This lesson tells you about the important and useful concept of double digit keying. You are again offered the choice of pressing **0** to return you to the first page of the database. Press:

**15**

as suggested, and you will see page 5830025 on your screen.

If you pressed **15** quickly, it is possible that you didn't see an intermediate page. Let us look at this idea in a little more detail. To do this type either:

***583002#**

or

**<F3 583002 F4>**

This will take you back to the start of lesson 2. Now instead of pressing **15** just press:

**1**

This takes you to page 5830023. Now press:

**5**

which will take you on to page 5830025. This allows you to see how double digit keying works; when you press the two digits quickly, one after the other, you are routed through the intermediate frame but its contents are not displayed on the screen.

Now press:

**3**

to take you to the next lesson. This explains how you can move directly to a page by typing in the page number. **<F3>** can be used instead of *****, in the same way that **<F4>** can replace **#**. The symbols ***** and **#** are frequently used Prestel commands. Because some people will already be familiar with them, they are used as the first choice in this manual. The second choice, **<F3>** and **<F4>** which are given in brackets are usually more convenient to use as they do not involve the **<SHIFT>** key.

When you follow one of the routes offered you should just type in the number, and the computer will assume that you have chosen a route. If you type in the number of a route which does not exist the computer will do nothing – try this by typing **9**.

If you type in ***** (or **<F3>**) the computer will then be expecting a page number. **#** (or **<F4>**) tells the computer that the number is complete. The computer will attempt to find that page and, if it is available, display it. You should now go to page 5830021 by typing ***5830021#**. You might wonder what happens if you ask for a page which does not exist. Try this by typing ***9999#** and you will see that the computer flashes a message at the bottom of the screen telling you that the database does not contain a page with that number.

Lesson 4 tells you about ***#** (or **<F3>** then **<F4>**). At any time, you can press ***#** (or **<F3 F4>**) to take you back to the previous frame that was displayed. You can step back up to 3 frames. For example, press ***#** (or **<F3 F4>**) three times. This will take you to page 583002 which is the start of lesson 2. Although route 5 is not listed as a choice you should now press **5**.

Lesson 5 explains the page and frame numbering system. If you want to display information that cannot fit on a single frame, you can create a page that extends over several frames. The user always sees frame **a** first and can move through the frames, in sequence, by pressing **#** (or

<F4>). Now key # (or <F4>) to move to frame 583005b and when you have read it key # (<F4>) again to move to frame 583005c.

You have now come to the end of the lessons and you are routed back to the Prestel index. The structure of the pages you have been looking at is shown in figure 3.3. Any page number may be called up individually by entering *number# (or <F3 number F4>), but the power of the system is the facility to link pages together and to thus organize information.

With a little practice you will soon become familiar with the way a database is structured. This is important when you come to design your own. Although you can select any page at random, by providing indexes and sensible routes from each frame, a user will be able to find the information in the most efficient way.

The sample database (DEMO) is simply there to introduce the idea of routing and to demonstrate the potential of the system. As you look through it you may find some features are particularly helpful, or you may think others could be improved. You should bear these in mind when you come to create your own databases. For example, 1 was used to recall lesson 1, 2 to recall lesson 2 and so on, and 0 was always used to return to the first page.

## Commands in the DISPLAY program

At the beginning of this chapter you selected option 1 (display viewdata pages), which called up the DISPLAY program. You have been using this program ever since to look at the pages of the demonstration database DEMO.

The Reference Card gives a list of all the commands you can use from the DISPLAY mode. We have talked about some of these in this chapter, and will look at the others in due course.

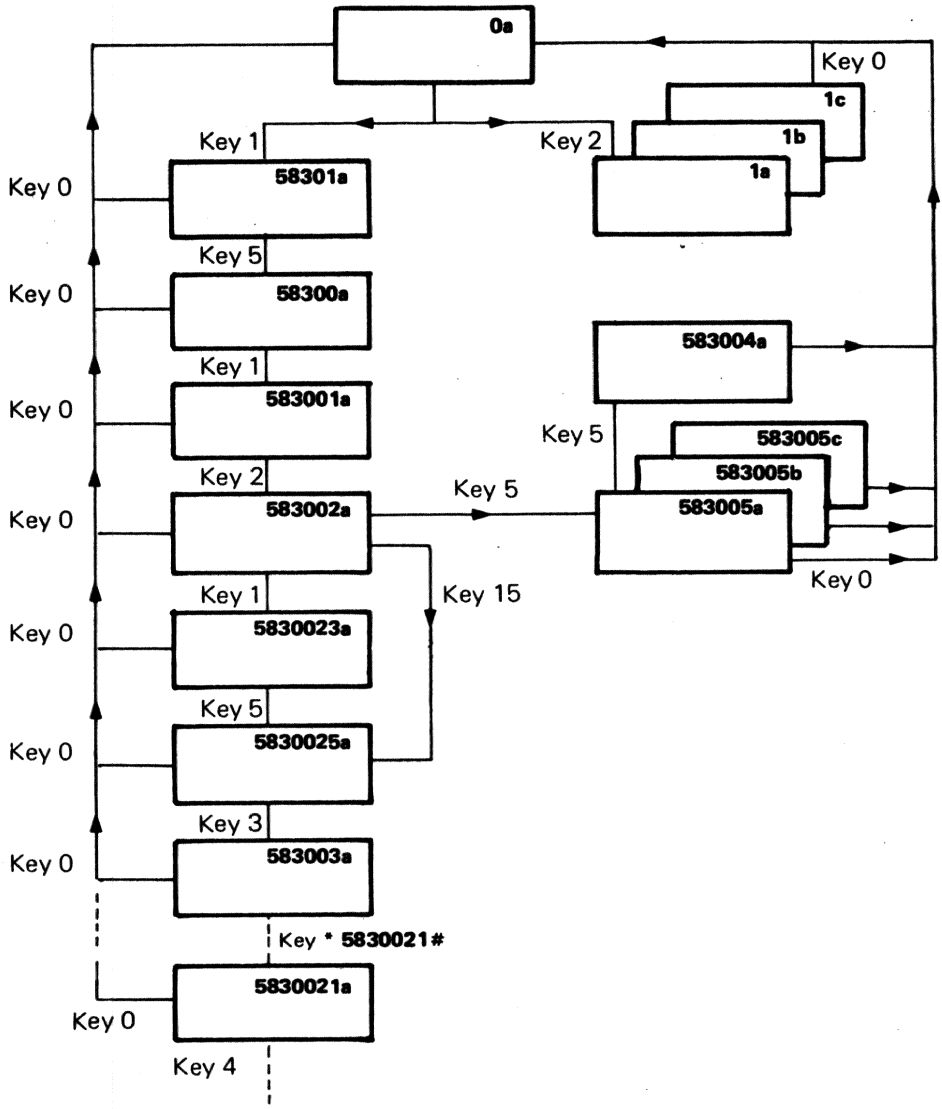



*Figure 3.3 The structure of the* **DEMO** database

# Chapter 4
# Putting text on the screen

This section deals with the EDITOR program on the Micro Viewdata disc and explains how to create and edit information. It has been written deliberately for the user who is not yet experienced in using Micro Viewdata. It shows in a simple way how various effects may be created on the screen by using control codes. If you are using Micro Viewdata for the first time you should read this part carefully – the subsequent sections are based on the knowledge provided here.

In the later parts the more advanced features relating to the screen display are discussed in detail.

## Before you start...

It is very important that you make a back-up copy of the Micro Viewdata master disc. If you have not already done so follow the procedure given in chapter 2.

## What you know already...

You should first have read the preceding chapter about using the DISPLAY program and by now have an appreciation of how viewdata appears on the screen. You have seen the various display facilities the system has to offer. These include the use of:

- colour
- double height and flashing text
- graphics
- routing structures

Apart from enabling you to create pages of information, the following sections deal with how to present that information on the screen. The EDITOR program allows you to enter the required information, together with the necessary control codes (or characters) which determine its appearance.

## Making space for your database

Up until now you have been using the DISPLAY program. It is time for you to leave this by pressing:

**<ESC>**

This brings you back to the Main Menu. Now press **<ESC>** again to return to the operating system.

Before you can construct your own frames you must first create a database to receive them. The Micro Viewdata distribution disc for 5.25 inch disc systems is full, so you will need to provide a suitable disc for the new database. This will be one of the following, according to the type of 480Z system you are using:

- A 480Z disc system with dual-drive double or quad density disc units: The database can be created on a separate disc held in the second drive.

- A 480Z disc system with a single-drive double density disc unit: a new system disc with the Micro Viewdata software but not the **DEMO** demonstration database must be prepared. See chapter 2.

- A 480Z disc system with a single-drive quad density disc unit: the working system disc has enough space for a you to create a modestly sized database of your own, in addition to the **DEMO** demonstration database.

- A 480Z network station on a network without a winchester disc: as for a dual-drive disc system above.
- A 480Z network station on a network with a winchester disc: the database can be created on any drive under any user number you have permission to use.

## Creating a new database

You should now have the Micro Viewdata software loaded into your computer and enough spare space on your disc to create your own frames. Load the Micro Viewdata root program by pressing

```
VIEWDATA <RETURN>
```

This time select option

`4` (create a new database)

from the Main Menu. We shall call the database `JIM` so enter this name when the program requests.

A message will be displayed asking you to wait while the database is created. You will then be taken to the EDITOR program and the Utilities Menu will be displayed on the screen. We will return to this menu later.

For now, you should select:

`0` (Editor Menu)

The Editor menu is then displayed, giving you a range of options as shown in Figure 4.1.

```
-------------
| Editor Menu |
-------------

(0) Utilities Menu

(1) Edit a Frame

(2) Create a Frame

(3) Copy a Frame

(4) Delete Frame(s)

(5) Database selection

Press <ESC> to leave Editor.

Please select an option by number:
```

*Figure 4.1 The Editor Menu*

## Selecting the working database

For the moment it is necessary to use only the two options described below. The others will be used later, and may for the moment be disregarded. Press

5 (database selection)

and the following screen is displayed:

```
--------------------
| Database Selection |
--------------------

Database to be Edited

Enter filename: C:DEMO....
```

*Figure 4.2 The Database Selection Screen*

You will notice that the default name, **C:DEMO** is shown. This is the name of the demonstration database supplied on the Micro Viewdata distribution disc. Use the **<DELT>** key to erase this name, but don't erase the logical drive name **C:**. Type in the name of the new database (**JIM**) and press **<RETURN>**

**JIM** is now the name of your 'working database'. The second part of database selection is to name the database from which you wish to copy frames into the new working database. The working database name is suggested. Simply press **<RETURN>** as we will not be copying frames just yet, and you will be taken back to the Editor Menu.

## Creating a frame

When the working database has been specified, you are ready to select:

2 (Create a frame)

from the Editor Menu. You will then be asked to enter a page number. Since this is the first page of your database enter:

0

and then

**<RETURN>**

You will notice that a frame ID (identification) has been selected. The frame ID is always shown as a lower case letter. In this case the letter **a** has been selected. This indicates that you are about to create the first frame of page **0**. Whenever you wish to create a frame the computer will always select the first available frame of the page specified without further instruction, and this cannot be altered.

Press **<RETURN>** again and the following frame will be displayed:

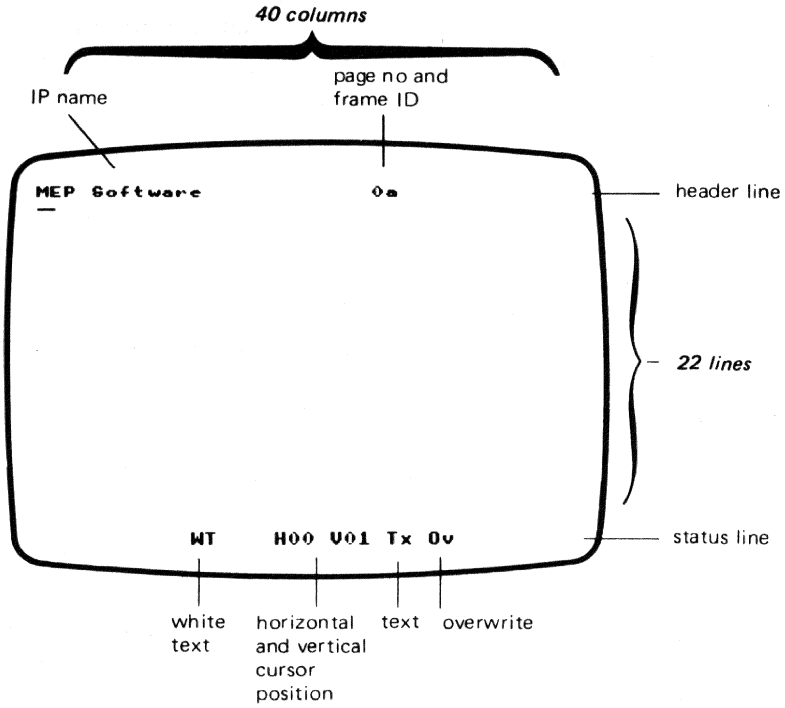



*Figure 4.3 Screen ready for frame creation*

The screen shows two lines of information, *the header line* and the *status line.*

## The header line

Three pieces of information are shown on the top or header line. **MEP Software** is displayed on the top left of the screen. The name of the organisation or person responsible for producing the database, the information provider (IP), is always displayed in this position. MEP provided the database **DEMO**. You will be shown how to change the IP names in chapter 11. To the right of the IP, the page number is displayed, in this case **0**, and the frame ID, in this case **a**. On the top right of the screen the cost incurred is shown. The cursor, a white square, is positioned just below the IP name.

## The status line

The bottom line of the screen, or status line, is used to display a variety of important information which tells you how the characters you type in will appear on the screen. For example, the first item shown is **Wt**. This is an abbreviation for 'White Text' and means that any characters you type in at the keyboard will appear in white on the screen. The next two pieces of information show where the cursor is positioned. **H** refers to its horizontal position, or column. **V** refers to its vertical position, or line. Initially the cursor will be at column 00, line 01 – this is shown as **H00 V01**. There are 40 columns across the screen and these are labelled 0-39. There are 22 lines, and these are labelled 01-22.

You can see the general layout and numbering of the screen if you look at the screen planning chart which is provided as a separate sheet with this handbook. It is also reproduced in appendix H. The header line, V00, (the top line of the screen) is occupied by the IP information, page number, and frame ID. It cannot be edited directly.

Next on the status line is `Tx`. This indicates that the computer is ready to display text as opposed to graphics characters.

The final item `Ov` means that you will be able to overwrite any characters currently on the screen by moving the cursor to its position and typing a new character. This is explained later in this chapter under 'Insert/overwrite modes'

## Moving the cursor around

The cursor shows where the next character you type will appear. Its position is given by the values of `H` and `V` on the status line.

The cursor is controlled by the group of four "arrow" keys on the bank of keys on the right of the keyboard.

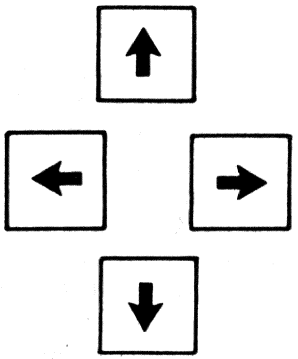


*Figure 4.4 The Cursor Control Keys*

Experiment with these keys to move the cursor round the screen. What happens when the cursor comes to the end of one line, or to the foot of the screen? Move the cursor to each corner of the screen to check its coordinates.

The **<RETURN>** key is also useful in moving the cursor to the beginning of the next line below.

It is most important that you realise that while the space bar apparently moves the cursor along the line you are in fact 'writing' blank spaces on the screen. Blank spaces are perfectly valid characters. They may overwrite whatever is on the screen and, while this can be useful for deleting characters, it can be irritating if you destroy some vital piece of your display, which as you will soon discover, may not be visible on the screen. To move to a specific position on the screen, and to keep your display intact, it is far better to use the arrow keys or the **<RETURN>** key.

There is a useful command that allows you to return the cursor to H00 V01 without going through any intermediate positions. This is the cursor's 'home' position and it can be sent back there by pressing first **<F3>** and then **4**:

**<F3 4>** (cursor home)

## The power of the function keys

If you tried **<F3 4>**, you will have noticed that two rows of information appeared at the bottom of the screen when you pressed **<F3>**, and disappeared when you pressed **4**. This is probably your first sight of how the Micro Viewdata EDITOR program is controlled from the 480Z keyboard. Many of the Editor commands are carried out through combinations of one of the four function keys: **<F1>**, **<F2>**, **<F3>**, and **<F4>** followed by one of the number keys **0** to **9**. Each function key has its own menu of commands shown at the bottom of the screen as soon as you press it. Try some. In the above case, you used **<F4>** to select a menu of ten commands and you used the home command by pressing **4**. You will learn how to use the other commands as you proceed through this manual.

## The two types of character

There are two distinct types of characters which make up a viewdata page:

1. Normal text and graphic characters. These are all entered from the keyboard in the normal way. Graphics characters (various mosaic shapes) are dealt with in detail in chapter 5. Appendix B shows the graphics shapes available.

2. Control codes. These determine how the text and graphics are presented. The control codes affect all those characters to the right of them on the current display line. These codes are entered onto the screen using one of the function keys and a numeric key at the top of the keyboard. In the next section you will see how control codes are used to create coloured text.

## Colour

Now move the cursor back to H00 V01. Type:

```
viewdata
```

(If you make a mistake you can use the **<DELT>** key to erase it.) The word will appear in white characters. Notice that the cursor is now at column 08. You can use 7 colours to construct a screen display. These are selected by pressing the key **<F1>** and then the number key corresponding to the colour you want:

```
1       Rt      Red text
2       Gt      Green text
3       Yt      Yellow text
4       Bt      Blue text
5       Mt      Magenta text
6       Ct      Cyan text
7       Wt      White text
```

Try selecting red text by pressing

```
<F1 1>
```

Two things happen on the screen when you do this. Firstly, the cursor moves to the right by one position. Secondly, the status line shows `Rt` instead of `Wt`. Type:

```
viewdata
```

again. It will not appear as white text but will be in some other colour – ignore this colour for the moment. Now try typing it again after selecting green text using `<F1 2>`. This time it will appear in white. Now select yellow text using `<F1 3>` and type it in again; this time it will be coloured. Now press the **<RETURN>** key. This causes the cursor to move to the next line and each of the three "viewdata's" changes colour – now each should have a colour that approximates the colour that you selected for it.

The term "approximate" is used intentionally as Micro Viewdata chooses a *dithering pattern* made up from the four primary colours it selects as its colour "palette". The 480Z only permits four colours to be used in its high resolution graphics mode and the technique of mixing small dots of differing colours, known as "dithering", is used to obtain the range of eight colours.

Notice that each time you change the colour a space is inserted. When you come to the end of the line there is no need to press **<RETURN>** – unless you want to check the effect of the colour you selected. The word will be continued on the next line anyway. However, it is only when you press **<RETURN>** that the correct colour appears on the screen.

Notice also that when you press <RETURN>, `Wt` is displayed once again on the status line. This effect is explained further on.

Move the cursor back to H00 V01 – using <F3 4> (cursor home) – and then move along the line one step at a time (using the right-arrow key). Watch the status line. You will see the way the text and colour attributes displayed on the bottom line change.

## Control codes

You have already seen how the colour control code works. When you changed the colour of the text to be displayed on the screen, you did so by placing a control code on the screen. This code occupied the space between the words and instructed the computer how to display the letters that you typed in at the keyboard. Control codes have some very important features:

- They are invisible, that is, nothing actually appears on the screen when you display the page. In this respect they are hidden from you.

- Despite being hidden, each control code occupies one character position on the display line. For this reason you cannot actually have 40 displayed characters on a line (unless you simply have white text against a black background).

- Control codes cause whatever is displayed to their right to change its appearance in some way.

- Control codes affect only the display line in which they are placed. To duplicate an effect on subsequent lines (such as blue text on 4 concurrent lines), the control code has to be duplicated on each line.

The above points are expanded in the text but are included here to help you understand the reasons for placing control codes in particular positions.

You can check whether or not a control code has been used by looking at the status line. You have already seen how colour control codes are shown. Later you will learn how to produce other effects such as double height characters. The status line will tell you which options are selected and hence how your characters will appear.

Try entering a colour control code in the middle of a word. It deletes a character, and affects those characters to the right of it. This is another way of showing that each control code occupies one character position on the screen.

## Overwrite/Insert modes

`Ov` is displayed on the right hand end of the status line. This means that any characters already on the screen may be overwritten. The computer is said to be in overwrite mode. The effect of this is best illustrated by an example.

Move the cursor down to the beginning of a new line by pressing:

```
<RETURN>
```

Now type:

```
the old car
```

Move the cursor back until it is above and to the left of the letter 'o', and type:

```
new
```

The word 'old' has been overwritten by 'new'. Now position the cursor at the 'c' of 'car'. Change from overwrite to insert mode by pressing:

<F2 6> (overwrite on/off)

You will notice that In appears in place of Ov on the status line. This indicates you are now in insert mode. Type:

black

followed by one space.

The phrase now reads 'the new black car'. The word 'black' has been inserted between 'new' and 'car'. If you want to change back to overwrite mode, then again press:

<F2 6> (overwrite on/off)

<F2 6> will always change the current status of the insert/overwrite function. A control such as this is referred to as a 'toggle'. Micro Viewdata uses a number of other toggles.

You will find insert mode useful if you have to put in some missing characters. Overwrite mode is more convenient when you have to correct individual characters but do not want to upset the screen display.

## Double height characters

Now move the cursor down a couple of lines (using <RETURN>) and press:

<F2 4> (double height on/normal height off)

Notice that a control code has been inserted in your current line of text – the cursor has moved one place to the right. Also Dh is shown on the status line. This

means that any characters that you type will appear in double height. They will be enlarged vertically, but the width of each character remains the same. Try typing the words:

```
large text
```

This feature is very useful for headings etc. Particularly striking layouts can be created by combining colour with double height text. For example move down two lines using <RETURN>, and press:

<F2 4> (double height on/normal height off)
<F1 2> (green text)

and type:

```
large green text
```

You can turn off the double height effect by pressing:

<F2 4> (normal height on/double height off)

Again type:

```
large green text
```

This is another example of a 'toggle'. Pressing <F2> and then 4 will always change the current status of the double height function. In the rest of this handbook we shall not label the effect which is being turned off. Hence <F2 4> will appear with either the description 'double height on' or 'normal height on'.

Another 'toggle' is introduced in the next section.

*Note*: If the line below the cursor already contains characters, Micro Viewdata will not allow you to insert a double-height control code.

## Flashing characters

Move the cursor down again and this time press:

`<F2 5>` (flash on)

You will see that another control code has been put on the screen and is indicated by `Fl` on the status line. This means that whatever you type in will flash. Try typing:

```
flash
```

Everything following the flash-on code `<F2 5>` will flash. Now try combining several control codes. Go to a new line and press:

`<F2 4>` (double height on)
`<F2 5>` (flash on)
`<F2 3>` (yellow text)

then type:

```
big yellow flashing text
```

If you want to revert to normal height, non-flashing text press:

`<F2 4>` (double height off)
`<F2 5>` (flash off)

## Changing the background colour

So far all the effects we have looked at have been against a black background. Unless you specify otherwise, Micro Viewdata always produces normal height white text on a black background. As you will have seen from the sample database, it is possible to have various background colours.

The key combination **<F1 8>** is used to define a new background colour. This changes the background colour to that of the currently selected colour. For example, move the cursor down to the beginning of a new line by using **<RETURN>**, and then press:

**<F1 3>** (yellow text)
**<F1 8>** (new background)

A broad band of yellow should have appeared across the screen. Try making a 'rainbow' effect by using several different background colours in succession. You will need to move the cursor down to a new line for each colour you require, select the colour, and then new background.

In the next section of this chapter, some ideas are suggested for creating an introductory frame for your database. For this you will need a clear screen. If you have accumulated a screen of unwanted text and stripes you can abandon it by pressing **<ESC>**. You will be asked if you want to abandon the screen edit. **N** returns you to the cluttered screen, **Y** takes you back to the Editor Menu *Usually you should avoid abandoning screens as this can result in the loss of about 1000 bytes of disc storage for each one.*

However, for the moment just press **Y**.

## Making an introductory frame

An introductory frame should serve several purposes. For example, it should let users know:

- which subject(s) are covered within it
- who created the database
- how to see the next frame.

It should also have a neat and attractive appearance. Here we explain how to construct part of an introductory frame - later graphic designs will be added.

When you are designing a frame the first step should be to draw up a paper plan. A plan for part of a simple introductory page is shown below:

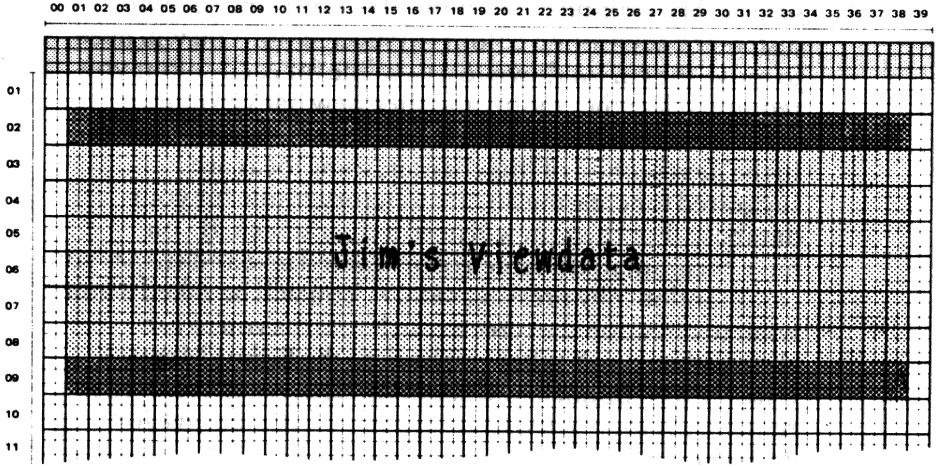



*Figure 4.5 An introductory frame*

From the Editor Menu (which should still be on the screen!) you should select:

2 (Create a Frame)

When you are asked to enter a page number specify 0, as before. The frame ID a is again supplied. You will be taken back to the same frame used previously but it will be clear of the unwanted text etc.

The frame can be constructed in the following way. If necessary position the cursor at H00 V01. This line is to be left blank, so just press **<RETURN>** once. The cursor moves down to H00 V02. This next line is coloured cyan. So press:

**<F1 6>** (cyan text)
**<F1 8>** (new background)

The background for the line V02 has now been changed to cyan (the current text colour). Bring the cursor down to line V03 by pressing **<RETURN>**. This line is blue. You will need to select blue as the text colour. Press:

**<F1 4>** (blue text)
**<F1 8>** (new background)
**<RETURN>** (to move the cursor down)

You should repeat this last procedure 5 times in all so that 6 lines have blue as the background colour (that is lines V03 to V08). Position the cursor at H00 V09; this line is cyan, so you will need to press:

**<F1 6>** (cyan text)
**<F1 8>** (new background)

The box has now been completed. The next step is to write the title on the screen in cyan and double height. Use the cursor keys to move the cursor to H10 V05. You will notice that **Bt** is shown on the status line. If you try to type without changing the colour you will not be able to see what is on the screen, because the characters are blue on a blue background! If you are planning to use a name other than 'Jim' see the NOTE below.

With the cursor still at H10 V05 select cyan as the text colour by pressing:

**<F1 6>** (cyan text)

Because the characters are to be double height you will also need to press:

<F2 4> (double height on)

The status line should show `Dh` and `Ct`. You are now ready to type the title, `Jim's viewdata`.

A small task remains. At the beginning of each line a control was written on the screen to create the new background colour. The space which is left makes the screen seem unbalanced. This is easily corrected by changing the colour of column H39 (the farthest right position) to black on lines V02 to V09. This may done in the following way. Move the cursor to H39 V02 and press:

<F1 9> (black background)

The length of the cyan background has effectively been reduced by 1 character width. Repeat this procedure for the rest of the lines. Notice that because of the double height code, pressing <F1 9> (black background) at H39 V05 affects 2 lines.

The title and its surrounding panel should now appear centred on the screen. There is sufficient space remaining on the frame for instructions and a graphic design to be added later.

*Note*: If you have chosen to use a name other than 'Jim' you may need to place the colour and double height control code at a position other than that specified above. This will ensure the name is central on the screen. If you are using a 5 or 6 letter name begin 1 position to the left (ie H09 V05). For a name with 7 or 8 letters begin 2 positions to the left (that is H08 V05).

It is very useful to be able to calculate where to place text and control codes on the screen. How would you go about centring 'Sports results' in the same style as above?

Here are a few tips. The screen is 40 columns wide, and is numbered 0 to 39. Colour and double height codes (and the code to cause flashing) occupy 1 character position, and appear on the screen as a space. The new background control code produces its effect from the column where it is inserted. Capital and small letters, commas and spaces take 1 column each. Micro Viewdata has some features which help in the formatting of text and graphics. (See chapter 7).

Careful thought about where to place your text, and the use of different background colours will allow you to create displays that are concise, easy to understand and pleasing to the eye.

The background colour can be changed several times within the same line, but probably you will not want more than 2 or 3 colours at the most. You can revert to a black background at any time by pressing <F1 9>. When using the flash feature in conjunction with a background colour, any text written over the background will flash in the normal way.

## Saving the frame

When you are happy with the design of the frame you will want to store (or save) that page on your disc. This means that the frame can be recalled when it is required. It is good practice to make a note of the page number and frame ID along with a brief description of the contents. To store the frame press:

<F3 0> (save frame)

You will be presented with the routes editor. The use of this is described in chapter 8. For the moment, simply save the frame without any routing details by pressing

```
<F4>
```

(The routing can be added later.) The message:

```
Please wait...
```

will be displayed while the frame is being saved and you will be returned to the Editor Menu.

## Looking at the frame you have created

If you want to have a look at the frame you have just created,you have to leave the EDITOR program and call up the DISPLAY program. Do this by pressing **<ESC>** (to return to the Main Menu) and then select option **1**.

You want to look at frame **0a** in the database **JIM**. However, whenever you call up any program the start-up file is consulted to find out what working database the program should use. You have just called up the DISPLAY program, and since the start-up file contains the name **DEMO**, the demonstration database **DEMO** is the one you will be looking at now.

To alter this just press

```
*966#
```

Delete **DEMO** shown on the screen using the **<DELT>** key and type in the name of the database you want to look at—in this case **JIM**. Don't alter the drive **C:**. Press the **<RETURN>** key twice. You can now display the database **JIM**, and can look at the frame **0a** that you have just created!

## Getting back to the EDITOR from DISPLAY mode

In the next chapter you will be shown how to draw designs and shapes on the screen using the EDITOR program. Leave the DISPLAY program by pressing

```
*910#
```

You will see the Editor Menu. Yet again, in moving between programs, the database has reverted to that named in the start-up file—**DEMO**. Change this to **JIM** using option 5 of the Editor Menu as described earlier, under 'selecting the working database'.

## Commands in the EDITOR program

In this chapter we have looked at some of the commands that you can use in the EDITOR program. The reference card gives a complete list of these commands as well as the other commands that you will meet later. If you are in any doubt about any command, look it up on the reference card.

## Summary

If you have worked through the preceding sections you should now be able to load the programs, go to the Editor Menu, and select a database for the creation of your own frames. You should be able to use control codes to produce combinations of coloured, double height and flashing text on various colours of background. The difference between overwriting and inserting should also be clear, and you should be confident in moving the cursor about the screen. Finally, you should be able to save frames.

A lot of ground has been covered in this section and it is worthwhile spending time to make sure that you understand all the topics. An understanding of these is needed in the next section where the use of graphics is introduced.

# Chapter 5
# Making shapes and patterns

As well as entering text characters on the screen it is also possible to create diagrams and pictures using graphics characters. This is one of the most exciting features of Micro Viewdata, and many impressive effects can be created.

Each text character on the screen is made up from patterns of tiny dots. These patterns are stored inside the computer in such a way that each time you type the letter 'A', for example, the pattern of dots shown in figure 5.1 appears on the screen.

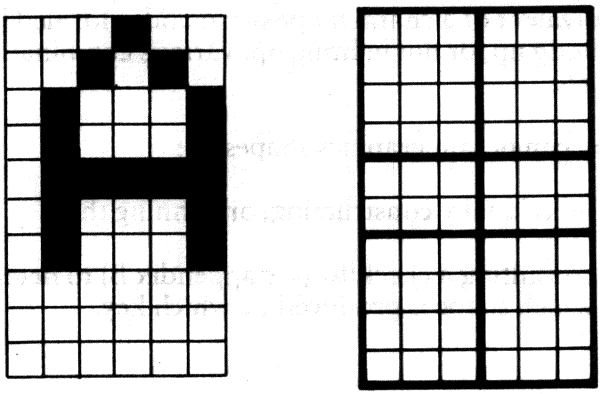


*Figure 5.1 Text and Graphics Character Matrices*

Notice that there is a line of blank dots to the left (which creates the letter width spacing within a word) then 3 lines of blank dots at the bottom of the character (which create the spacing between lines).

## Graphics characters

When you use graphics characters in Micro Viewdata, this same group of dots is divided up as shown in figure 5.1. You will see that each character position is now divided into six sections – 3 high and 2 across – each one of which can be illuminated or not depending on the shape you wish to appear on the screen.

Each section is known as a pixel. We use the word 'pixel' here to mean the smallest point or area that you, the user, can define on the screen. Notice that there is no allowance for spacing above, below or to the sides. This is quite different from using text characters. Graphics characters can butt up to one another, allowing 'mosaic' designs to be created. Each graphics shape occupies the equivalent of a character position and is formed by lighting up, or not lighting up, various combinations of pixels.

You can obtain graphics shapes by:

- individually constructing, or defining them
- consulting a checklist (see appendix B) to determine which shape is produced by which key.

## Defining your own graphics characters

A facility exists to allow you to specify from the keyboard which individual pixels are to be lit. The keys **Q W A S Z X** (which are on the keyboard in the in the form of 3 pairs of keys, one above the other) are used to instruct the computer which pixels to light up in the current graphics colour. The exact relationship between keys and pixels is shown in Figure 5.2.

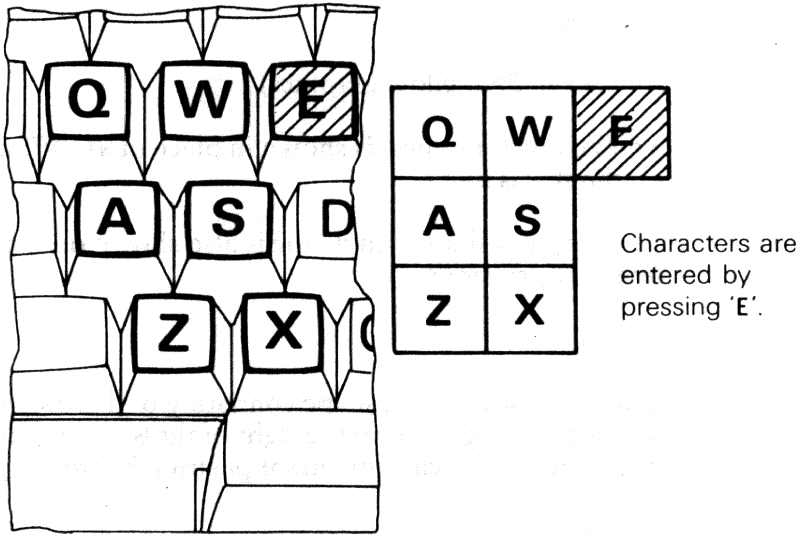



*Figure 5.2 Each key lights up the relevant pixel*

The Editor Menu should be displayed on your screen, and your working database should be **JIM** (assuming you followed the directions in 'getting back to the EDITOR from DISPLAY mode' in the last chapter!). Select:

**2** (Create a frame)

and enter page number **1**. The frame ID will be supplied as usual. (Specifying page 1 leaves page 0 free for the continuation of the example started earlier.)

When the blank frame **1a** has appeared, enter define graphics mode by pressing:

**<F2 7>** (user-defined graphics on)

Look at the status line to confirm that you are in the correct mode. The **Tx** will have changed to **Gr**, and a single letter **G** will have appeared on the right hand end of the line. Now select a colour, for example yellow, by pressing:

**<F1 3>** (yellow graphics)

**Yg** (Yellow Graphics) is shown in place of **Wt** (White Text) on the status line.

The graphics shape you define is also shown on the status line. Try pressing:

**Q S Z**

You will notice that a shape consisting of three small squares has appeared to the right of the **G**. This shape may be entered at the current cursor position by pressing:

**E**

It will appear in the selected graphics colour. Pressing **E** again repeats it. Change to another graphics character by pressing:

**W X**

and then

**E**

to place it on the screen. The status line retains the shape until you define another.

Now try pressing:

```
A
```

to illuminate the remaining pixel. Press it again – and watch it disappear. When a pixel has been illuminated, pressing the same key again will erase it.

If you change your mind or want to experiment with different combinations of pixels, pressing the space bar will cause all the pixels at the current cursor position to become blank. You can use the **<LEFT>** key to move it back, and then choose a different combination. Alternatively, check that the computer is still set to overwrite characters ( **<F2 6>** ), define the new shape, and press **E**.

When you move to a new line, the status line will always show **Wt** (white text). You will remain in define graphics mode but will need to re-enter the control code for the required graphics colour. For example, if you want white graphics, press:

**<F1 7>** (white graphics)

You can delete a graphics character using the **<DELT>** key. The **<DELT>** key in fact deletes whatever is immediately to the left of the cursor, whether it be a text character, a graphics character, or a control code!

Earlier you used control codes to define a text colour. These were indicated by **Ct**, **Bt**, etc. on the status line, meaning 'Cyan Text', 'Blue Text' and so on. When you want to use graphics shapes you must first define a graphics colour. These are indicated by **Cg**, **Bg**, etc. meaning 'Cyan Graphics', 'Blue Graphics' and so on. Graphics and text

may be freely mixed on the same frame and on the same line. You must, however, use the required control codes to distinguish between, for example, cyan text and cyan graphics. Before you insert a colour control code, check the status line. If `Gr` is shown on the status line, any colour control codes entered will define a graphics colour; if `Tx` is shown, a text colour will be selected.

*Note*: Graphics characters can be placed on the screen only when you have selected both graphics mode and a graphics colour. Always check the status line if problems occur.

## Drawing up a plan

It is important that you have some idea of what you want to create before beginning with a blank screen in front of you.

The Micro Viewdata screen planning chart (provided as a separate sheet, and also in appendix H) helps you to work out which particular graphics shapes you need. The grid drawn on the screen planning chart shows each character position, and is subdivided into six sections which represent the individual pixels. By lightly drawing a freehand sketch on a copy of the chart, you will see which combination of pixels best represents your design. You will then need to examine where the various control codes should go.

In the following example a sketch has been made to help in the task of translating the idea into reality.

Suppose you want to create a shape like the one shown below in Figure 5.3. The shape takes up a total of 4 lines and 5 columns. The user-defined graphics facility can be used to 'paint' the shape on the screen.

First clear your screen. You can either use the **<DELT>** key or you can clear each line using

**<SHIFT/UP>.**

which clears the line where the cursor is.

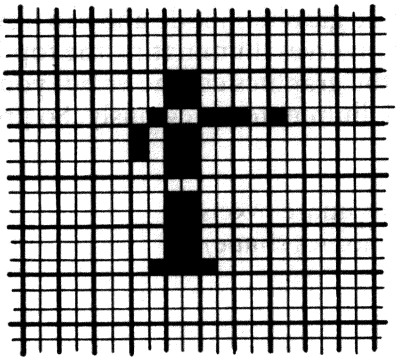


*Figure 5.3 Pixel man*

Check that the computer is ready to create graphics shapes by looking at the status line. This should show both **Gr** and **G**. If it does not, set user-defined graphics on by pressing:

**<F2 7>** (user-defined graphics on)

Make sure that no pixels are illuminated. Move the cursor to H16 V08, and press:

**<F1 4>** (blue graphics)

The status line will show **Bg**. The first character to be drawn (top left of the design) consists of one lit pixel only. Obtain this by pressing:

**X** (illuminate pixel)

A single dot will appear next to the **G** on the status line. Enter this shape on the screen by pressing:

**E** (enter the graphics shape)

You are still in define graphics mode and can now draw the shape's head. This involves illuminating the top 2 and middle 2 pixels of the graphics character but you must first erase the pixel illuminated previously. So press:

**X** (erase pixel)
**Q W A S** (illuminate pixels)
**E** (enter the graphics shape)

Now press:

**Q W A S** (erase pixels)
**Z X** (illuminate pixels)
**E** (enter the graphics shape)

**X** (erase pixel)
**E** (enter the graphics shape)
**E** (enter the graphics shape)

The top line of the shape is now complete. Move the cursor to H16 V09 and continue painting the shape by pressing:

**<F1 4>** (blue graphics)
**Z** (erase pixel)
**Q A** (illuminate pixels)
**E** (enter the graphics shape)

**W S Z X** (illuminate pixels)
**E** (enter the graphics shape)

This completes the second line. Continue by moving the cursor to H16 V10 and pressing:

<F1 4> (blue graphics)
<SPACE> (press the space bar)
Q W (erase pixels)
E (enter the graphics shape)

Finally move down to H16 V11 and press:

<F1 4> (blue graphics)
A S Z (erase pixels)
E (enter the graphics shape)

Q W A S Z (illuminate pixels)
E (enter the graphics shape)
Q W A S X (erase pixels)
E (enter the graphics shape)

The figure is now complete. If you want to leave the graphics mode to add some text to the frame, press <F2 7> to restore Tx to the status line. Notice that if you want to write text to the right of the figure on lines 8, 9, 10 or 11 you will have to insert an appropriate control code to define a text colour. These lines are affected by the blue graphics control codes. Before entering text, check that the status line shows a colour followed by t, for example, Wt.

When you are ready, save the frame by entering:

<F3 0> (save frame)
<F4> (confirm routing)

This saves the frame without any routing details, but these can be added later. You will now see the Editor Menu on your screen again.

# Pre-defined graphics characters

As well as defining your own graphics shapes, you can define all the possible shapes by using single key presses. Each graphics shape, or graphics character, is assigned to a lower case letter, number, or punctuation symbol. Appendix B lists the keys and the shapes they produce.

Create a new frame using option **2** and select page **1**. This time the frame will be **b** (frame **1a** is the pixel man – Figure 5.3).

When you are ready, move the cursor to the beginning of a new line. To enter graphics characters using this method press:

**<F2 1>** (pre-defined graphics on)

You will notice that the **Tx** has changed to **Gr** but that no **G** has appeared on the status line. Before you can enter any graphics characters, you must select a graphics colour as before. (Remember that each line begins automatically with white text, **Wt**). For example, pressing:

**<F1 1>** (red graphics)

selects red graphics, and **Rg** appears on the status line.

The graphics shapes in Appendix B can now be written on the screen by pressing the appropriate keys. By way of an example, try making the box in Figure 5.4 and writing a title in it.

Here are some hints to help you:

- Make sure **<SHIFT>** and the **<CAPS LOCK>** key are off.
- Use **s** to draw the horizontal and **5** to draw the vertical lines. The top left and bottom left corners

are formed by 7 and u. The characters adjacent to the top right and bottom right corners are formed by 3 and r.

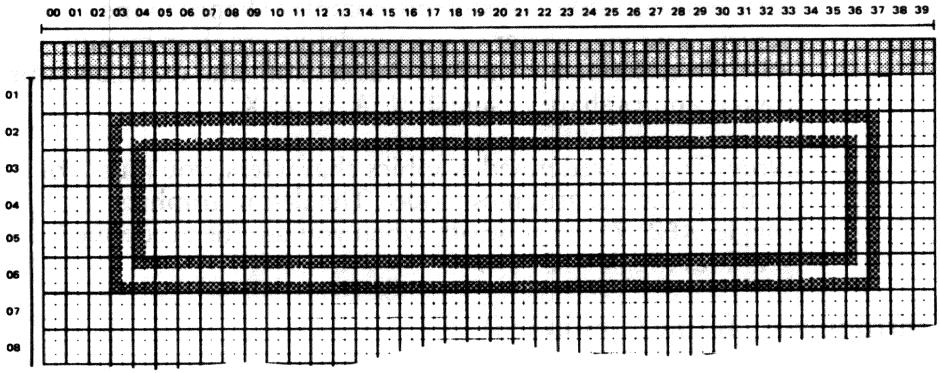



*Figure 5.4 Plan of a box to emphasize a frame title*

- Don't forget to set pre-defined graphics on at the beginning of each line. You will also need to put a graphics colour control code just before the right hand margin. (If you forget to do this, the pre-defined graphics characters will revert to their text equivalent when you write in the box.)

- Be careful not to overwrite any of the graphic colour control codes: if you do, the whole line will revert to text. You can avoid this possibility if you set the computer to insert characters by pressing:

  <F2 6> (insert on)

- When you come to write text in the box, pressing <F2 1> will allow you to define text characters again - Tx will be shown on the status line.

- When the box is complete, you save it by pressing:

  `<F3 0>` (save frame)
  `<F4>` (confirm routing)

Constantly referring to the list in appendix B can be a little tedious when transferring complex shapes to the screen. You may prefer to use the define graphics facility `<F2 7>` described in the previous section, and make up your own graphics shapes using `Q W A S Z X`.

*Note*: To get predefined graphics characters, you must *not* be in the 'define graphics mode'. The define graphics toggle `<F2 7>` must be off, when you use the predefined graphics toggle `<F2 1>`.

## Introductory frame (continued)

It is now possible to carry out some more work on the introductory frame (see Figure 4.5) that you stored previously as frame `0a`. In Figure 5.5 you will see that an outline has been added to the design. Recall the frame by selecting:

`1` (edit a frame)

from the Editor Menu. Remember this was frame 0a of your database. Enter `0` as the page number. The program will supply `a` as the ID, so simply press `<RETURN>`.

The outline can be drawn most easily using your own graphics characters. First of all set user-defined graphics mode by pressing:

`<F2 7>` (user-defined graphics on)

Now move the cursor down to H00 V10. A cyan control code has to be inserted here, so press:

`<F1 6>` (cyan graphics)

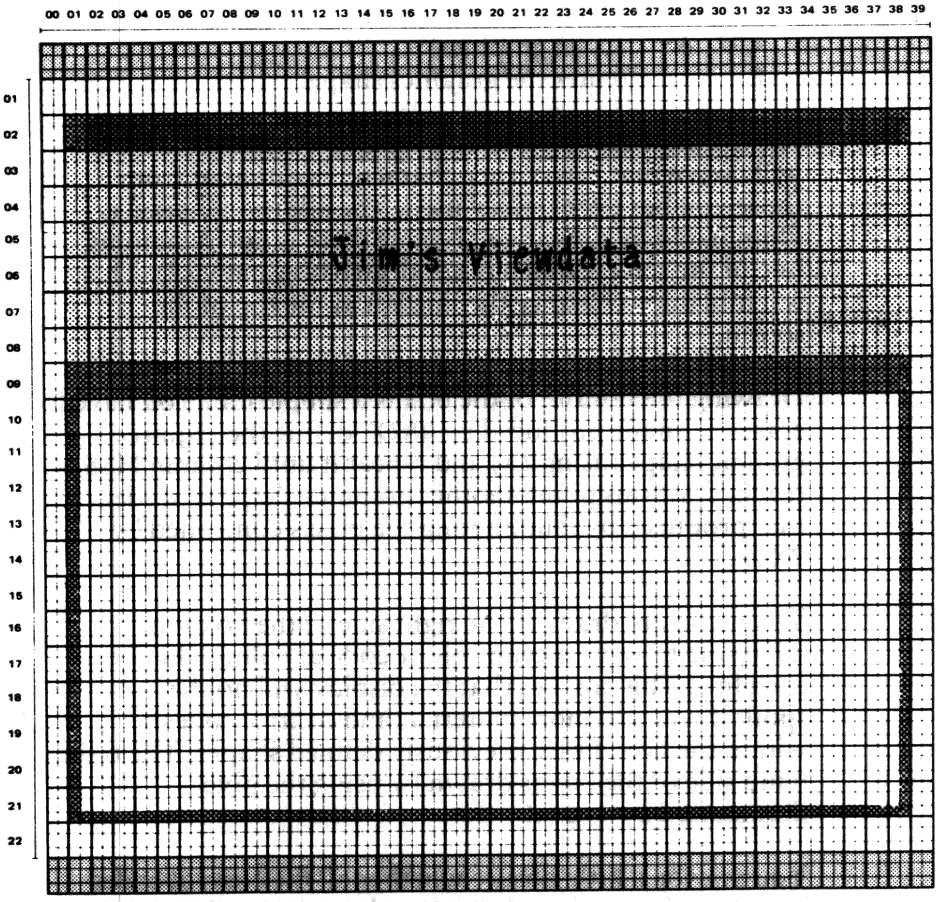



*Figure 5.5 Planning an Introductory Frame (continued)*

The status line should now show **Cg**. Using the keys **Q A Z**, construct the graphics character that forms the line on the left of the box, and write it on the screen by pressing **E**.

Use **<RETURN>** to drop down a line, and repeat the process, that is, press:

| | |
|---|---|
| **<F1 6>** | (cyan graphics) |
| **E** | (enter the graphics shape) |

Repeat these key presses until you reach line V21. You will notice that this corner character is different from those you have previously used. The additional pixel is illuminated by pressing **X**. Notice there is one remaining line of the screen which is not drawn on (line V22). This is left blank to balance the line left at the top of the screen.

Drawing the bottom of the box is a simple job. You have to erase the shape produced by **QAZX**, define the required graphic shape (using **ZX**) and repeat it until column H38 is reached. At this point another graphics shape is needed, that produced by illuminating the pixels controlled by **ZXSW**.

When you are drawing the right side of the box it is advisable to write a cyan colour code at column H37 on each line. This ensures that the display will not be spoilt if you add more material (and control codes!) within the box. Erase previously defined shapes. The right hand side of the box is drawn by using the pixels illuminated by **W S X**.

You may be a little unsure whether all the control codes have been inserted on the right side of the box (in column H37). Missing one out would not have any immediate effect! You can review where the control codes are by looking at the left hand end of the status line where each character inserted in the frame is displayed when the cursor is moved over it.

For example, to make sure that all the control codes have been inserted along the right hand margin, position the cursor at H37 V20. The status line should now show `Cyan Graphics`. This indicates that a control code for cyan graphics has been inserted at this position. Use the **<UP>** key to move the cursor vertically upwards checking that the appropriate control code has been inserted. When you reach H37 V09 the status line will simply show " ". This means that there is no control code nor text or graphics character at this position (although the background may be coloured). Now move the cursor further up the screen to H37 VO5.

Use the **<LEFT>** key to move the cursor back along the line. Notice how the status line shows each visible character. A text and a graphics form is shown. For example, position the cursor over 'a'. Look in appendix B to see which pre-defined graphics character is obtained by pressing **a**. Notice that this is the shape shown on the status line on your screen.

Similarly, the other text characters and graphics shapes will be shown together on the status line. Because control codes are hidden, it is particularly helpful to check their location in this way.

When the design is complete, save the edited version as usual by pressing:

**<F3 0>** (save frame)
**<F4>** (confirm routing)

# Concealed graphics and text

It is possible to incorporate 'hidden' text or graphics into frames that you create. For example you may want to display a question on the screen, but not reveal the answer until the user has thought about it and is ready. Micro Viewdata allows you to build this effect into your frames.

In the EDITOR program both text and graphics can be concealed by pressing

<F1 0> (conceal)

just before those sections of each display line that you want to hide from view. You are still in the EDITOR program (the Editor Menu should be displayed on the screen). Create a new frame as decribed previously, and try concealing some text or graphics.

The conceal code must appear after the colour control code where coloured text or graphics are to be hidden. Once you have inserted the conceal code you will not be able to see any text or graphics that you subsequently enter. If you press:

<F2 0> (reveal on)

the effect will be cancelled temporarily, but the conceal code will remain on the screen. You may then create the frame in the normal way. You can press:

<F2 0> (reveal off)

again if you wish to view the screen as it will appear with characters hidden. Pressing <F2 0> (reveal on) will again reveal any hidden characters. By now you will have realised that the sequence <F2 0> is yet another toggle!

The punchline of jokes needs to be hidden for maximum effect as in the following example. Move the cursor to H00 V10. Press:

`<F1 2>` (green text)

Type:

```
Why does an electronic gooseberry hum?
```

Move the cursor down to H00 V12 and press:

`<F1 2>` (green text)
`<F1 0>` (conceal)
`<F2 0>` (reveal on)

You can now type the punchline which is:

```
Because it doesn't know the words!
```

Check that the conceal control code has been inserted correctly by pressing:

`<F2 0>` (reveal off)

Before you save a frame containing conceal codes, the reveal option must be off, otherwise the characters will not be hidden as required in the DISPLAY program.

*Note*: In the DISPLAY program pressing `<F1>` reveals any hidden text or graphics.

The conceal code `<F1 0>` is different from all the other controls in that pressing it again does not turn it off. Instead the conceal effect is cancelled by any subsequent colour control code on the remaining part of the line. (As with all the control codes, it only affects the current display line and so its effect is also cancelled when you move to the next line.)

One consequence of this is that where you want to conceal text or graphics on a line, and that text or graphics changes colour, then you must place a second and third conceal code just after each colour control code within the hidden part of the display. Careful thought as to where to leave the necessary blank spaces is required when concealing complex parts of your display.

## Separated graphics

The graphics characters you have been using so far have been *solid*. This means that each pixel joins those next to it. *Separated* graphics leave a small corridor of space between each pixel to reveal the background. Particular effects can be created by the use of separated graphics. For example the butterfly on frame 1c of the sample database is constructed entirely with separated graphics shapes. The difference between separated and solid graphics is illustrated in Figure 5.6.

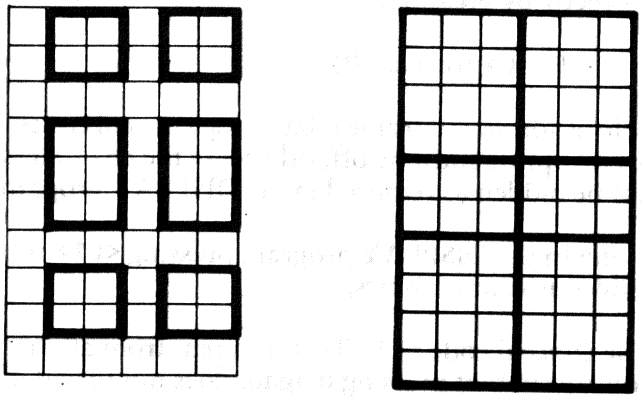


*Figure 5.6 Separated and solid graphics*

To obtain separated graphics, first of set user-defined graphics on using **<F2 7>**, and then select a graphics colour. Separated graphics may then be obtained by pressing:

**<F2 2>** (separated graphics on)

Separated graphics mode is indicated by **Se** on the left of the status line.

Separated graphics characters can now be created using **Q W A S Z X** and entered with **E**. Should you wish to continue using separated graphics on a new line, you will of course need to enter both a colour and separated graphics control code. You may return to solid graphics mode at any time by **<F2 2>** (solid graphics on).

## Hold graphics

As you have seen, control codes occupy a character space on the screen and normally prevent you from writing either text or graphics at those positions on the display.

When mixing and combining various effects together – for example, coloured background, double height, and flash all on the same line – 'gaps' have to be allowed in the display to accommodate the necessary codes.

With ordinary text this is not a problem, since these can be conveniently placed between words. The space can be replaced by a control code (which is displayed as a blank space) without destroying the appearance of the text.

Where you are using graphics characters to make up a design in mosaic form, 'holes' will appear if for example you change colour. Figure 5.7 demonstrates this.

To prevent this, a facility is available whereby a control code and a graphics character can occupy the same position on the screen. A graphics character is actually displayed at the same point on the screen where the control code is situated. When using this facility the control code still affects the remaining part of the line. This is referred to as the hold graphics facility.

To use the hold graphics facility press:

<F2 3> (hold graphics)

at a convenient point on the display line to a point to the left of where you wish to see its effect. Hd will be displayed on the status line confirming that the hold graphics code has been entered. It is common to set hold graphics near the beginning of a line since this control code needs a character space, but it may be placed over a previously specified background.

Once set, any graphics characters to the right of the hold graphics code are displayed in the normal way until another control code is reached. At this point, the graphics character immediately to the left of the new control code is copied into the space occupied by the control code. Figure 5.8 shows the effect of this.

Compare this to Figure 5.7 where the red graphics control code following the previous green graphics characters causes the displayed space to appear. In figure 5.8, where hold graphics is set, this space is occupied by a graphics character appearing in green over the red graphics control code. Subsequent graphics characters appear in red, butting up to the green characters.

Only the most recently used graphics character is copied over a control code in this way. Ordinary text is not copied over controls with this facility.

If the effect of hold graphics is required for only part of a display line, pressing

<F2 3> (release graphics)

again cancels the effect for the remaining part of the line. The release graphics code itself will have the preceding graphics character copied over it. If this proves undesirable then put a blank space prior to the release graphics control.

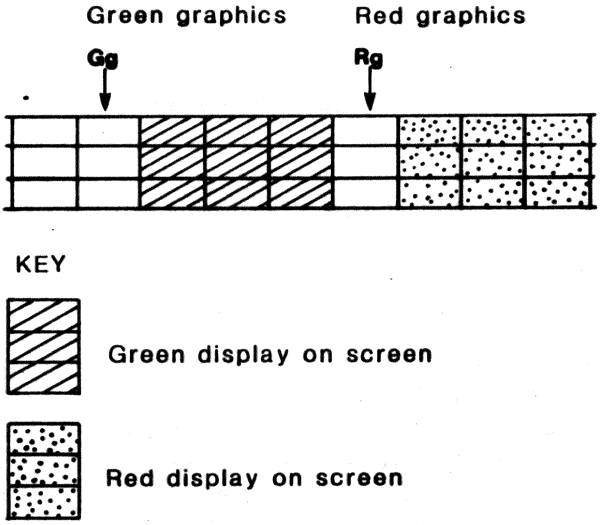



*Figure 5.7 Control codes causing spaces in the display*

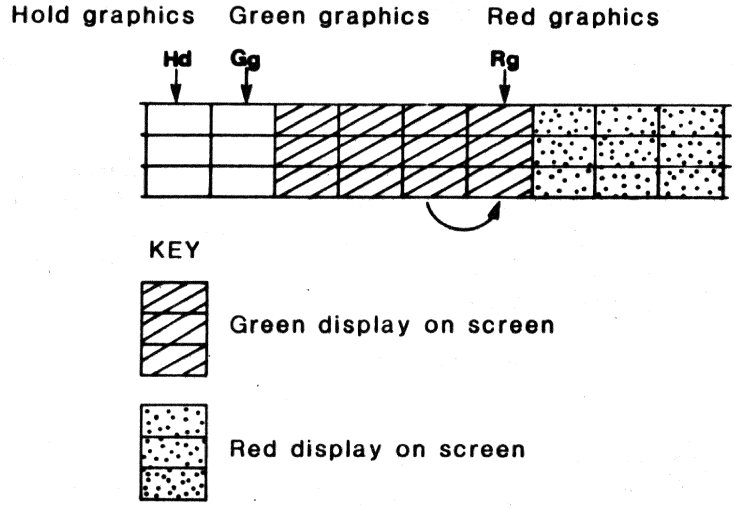



*Figure 5.8 Effect of using the graphics hold facility*

## Movement

The effect of movement can be acheived by using the flash facility. When flash is selected (using <F2 5>), any text or graphic characters on the line will flash on and off, covering and uncovering the background. You can create movement by changing the colour of the background and th colour of the characters, and using the fact that the flash effect is synchronised for all the characters on the screen.

The effect is easiest to understand by working through an example. Figure 5.9(a) shows how to make a yellow rectangle move up and down on a blue background. First either clear your existing screen or create a new frame (press <F3 0> then <F4> to get back to the Editor Menu). Then put the graphics mode on by pressing:

<F2 7> (define graphics on)

Make a solid block shape by illuminating all the pixels **Q W A S Z X** . Now you are ready to follow the instructions given in Figure 5.9(a).

Put the cursor at H00V01 and press:

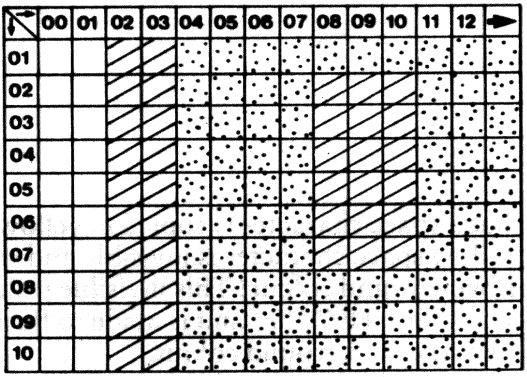
| | |
|---|---|
| **<F2 3>** | (hold graphics) |
| **<F1 3>** | (yellow graphics) |
| **E** | (enter the graphic shape) |
| **<F1 4>** | (blue graphics) |
| **<F1 8>** | (new background) |
| **<RETURN>** | (go to next line) |
| **<F2 3>** | (hold graphics) |
| **<F1 3>** | (yellow graphics) |
| **E** | (enter the graphics shape) |
| **<F1 4>** | (blue graphics) |
| **<F1 8>** | (new background) |
| **<SPACE>** | (press the space bar) |
| **<F1 3>** | (yellow graphics) |
| **<F2 5>** | (flash on) |
| **E** | (enter the graphic shape) |
| **E** | (enter the graphic shape) |
| **E** | (enter the graphic shape) |
| **<RETURN>** | (go to next line) |

And so on.

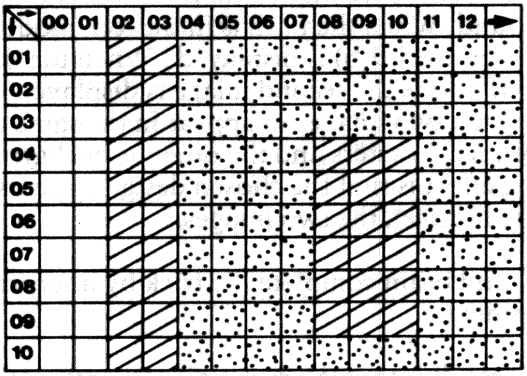
→ denotes a graphics character copied over a control character

| ↓ → | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | ⇩ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | | | | | | | | | |
| 02 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | SPACE | YELLOW GRAPHICS | FLASH ON | BLOCK | BLOCK | BLOCK | | | |
| 03 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | SPACE | YELLOW GRAPHICS | FLASH ON | BLOCK | BLOCK | BLOCK | | | |
| 04 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | SPACE | SPACE | YELLOW GRAPHICS | BLOCK | BLOCK | BLOCK | | | |
| 05 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | SPACE | SPACE | YELLOW GRAPHICS | BLOCK | BLOCK | BLOCK | | | |
| 06 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | SPACE | SPACE | YELLOW GRAPHICS | BLOCK | BLOCK | BLOCK | | | |
| 07 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | SPACE | SPACE | YELLOW GRAPHICS | BLOCK | BLOCK | BLOCK | | | |
| 08 | HOLD GRAPHICS | YELLOW GRAPHICS | FILL B'GROUND | BLUE GRAPHICS | BLOCK | BLOCK | BLOCK → | FLASH ON | BLOCK | BLOCK | BLOCK → | FLASH OFF | FILL B'GROUND | |
| 09 | HOLD GRAPHICS | YELLOW GRAPHICS | FILL B'GROUND | BLUE GRAPHICS | BLOCK | BLOCK | BLOCK → | FLASH ON | BLOCK | BLOCK | BLOCK → | FLASH OFF | FILL B'GROUND | |
| 10 | HOLD GRAPHICS | YELLOW GRAPHICS | BLOCK → | BLUE GRAPHICS | FILL B'GROUND | | | | | | | | | |
| ⇩ | | | | | | | | | | | | | | |

*Figure 5.9(a) To produce a moving rectangle*




Flash 'on'




Flash 'off'

KEY

Yellow display on screen

Blue display on screen

*Figure 5.9(b) A moving rectangle*

Notice that a space character is copied in yellow into H06 V02. A yellow space character is invisible and so all you see is the background colour! This invisible yellow space is then copied into H07 V02 and is made to flash – again all you see is the background colour.

If you carry on following these instructions, you will produce a yellow rectangle that moves over a blue background. When the flash is in the 'on' mode the first image of figure 5.9(b) is displayed . When the flash is in the 'off' mode the second image is displayed. By choosing the two images to appear in the same colour (one as graphics characters and the other as background), the resulting effect is that the chosen design appears to alternate between the two images.

The eye and brain complete the trick by interpreting this as movement.

The end result is that the rectangle – represented in one image in lines V02 to V07, and in the other image in lines V04 to V09 – moves up and down. Because of the need to have four controls at the beginning of lines V08 and V09, columns H02 and H03 show as yellow. This effect is duplicated deliberately in the rest of columns H02 and H03 for neatness only. Notice that lines V04 and V05 don't flash – they are the same whether the screen is flashing on or off.

## If you get lost, look at the map

In this chapter you have been using the EDITOR program. Sometimes you may find it difficult to work out exactly where you are. If you get lost, look at the back cover. This is a map that will help you work out which program you are using. Remember that every time you go to a new program (shown on the map), the working database reverts to the one named in the start-up file. If you haven't altered the start-up file, this will be **DEMO**.
If you want another database, you have to select it using ***966#** if you are looking at frames in the DISPLAY program, or using option **5** of the Editor Menu if you are in the EDITOR program.

As a general rule, wherever you are, **<ESC>** will take you back to where you came from.

## Summary

In this section we have introduced and developed the use of graphics. Two ways of obtaining graphics shapes have been covered – they may be defined from the keyboard or looked up in a table of predefined shapes. You should be confident in using graphics and text, but in particular you should be aware of the difference between graphics and text control codes. The use of the Micro Viewdata screen planning chart has been discussed, and we have described the use of a number of control codes to create special effects.

# Chapter 6
# Copying frames, deleting them, and windows

## Copying frames

The facility to copy frames allows you to incorporate frames from other databases into your own. The option is available from the Editor Menu. In the following example a frame is copied from the sample database (**DEMO**) to your own database (**JIM**). The procedure described assumes that both databases are on the same disc. The frame copied, 1c, is used in a later demonstration. Reload Micro Viewdata, if necessary, go to the Editor Menu and then select your own database (**JIM**) as the working database using option (**5**). This is described in chapter 4. Press **<RETURN>**. As usual, the computer suggests the same database name (in this case **JIM**) as the database for frames to be copied from. This time use the **<DELT>** key to erase this name and type:

**DEMO**

after the drive and semi-colon.

This means that you now can copy frames from the sample database supplied on the program disc to your own database. The drive-name must be supplied if the **DEMO** data base is on a separate disc in another drive. If you are using a 480Z with an MD1 Disc Drive and **DEMO** is on another disc, use the drive-name **B:** or **D:** and follow subsequent messages asking you to change discs during this and the following copying operations. Press:

**<RETURN>**

and the Editor Menu will be displayed.

Suppose you wish to copy frame 1c from the demonstration database to page 2 of your own database. Select:

**3** (Copy a frame)

The computer will confirm that you are copying from **DEMO**, and ask for a page number to be entered. Type:

**1**

and then press

**<RETURN>**

The computer will supply **a** as the frame ID. This can be changed by simply pressing:

**c**

and then

**<RETURN>**

If you make a mistake and enter a non-existent frame number, the message **Frame does not exist** will be displayed, and you may try again.

Alternatively if you realise you have made an error in entering any details press **<ESC>**. This will return you to the Editor Menu, from which you can make another attempt.

Once you have successfully identified a frame that is to be copied, you will be asked to enter the page number that you are copying to. In this example type:

**2**
**<RETURN>**

Again, the frame ID will be supplied, but on this occasion you will not be able to alter it. The ID allocated will be the next free ID. For example, if this is the first frame of the page, you will be able to copy only to frame 2a. The screen will appear as shown in Figure 6.1.

```
--------------
| Copy a Frame |
--------------

Copy from : DEMO

Enter Page Number : 1........

Enter Frame : c


Copy to : JIM

Enter Page Number : 2........

Frame ID : a

Press <RETURN> to confirm

Press  <ESC>  to return to previous menu.
```

*Figure 6.1 Frame copying screen*

Press:

**<RETURN>**

and the frame being copied will be shown. Note that you have the opportunity to edit and re-route this frame before saving it in the normal way using <F3 O> (save frame) and then <F4> (confirm routing). This routing business is explained in chapter 8.

## Deleting frames

At some stage you may want to delete frames because they are out of date, or because they were experimental. To do this select:

4 (Delete frame(s))

The program will ask you to supply a page number; it will then display the ID of the last frame of that page. Note that you will not be able to delete frame a if frame b exists. When the correct page number is displayed on the screen press:

<RETURN>

The frame will be shown on the screen. At the bottom of the screen the message:

```
Delete this frame (Y/N) ?
```

is displayed.

Answering N returns you directly to the Editor Menu, Y deletes the frame before returning. You may leave the frame deletion routine at any time by pressing <ESC>. Note that the space used in the database file for the deleted frame is *not* made available for new frames until after you have run the database maintenance utility (the create/update an index file option) which is decribed later in chapter 11. However, now, when you create a new frame for this page, it will be allocated the previous frame number.

## Windows

If you have spent a long time constructing a design it can be frustrating to have to repeat the work when the design is required on another frame. Micro Viewdata allows you to move or copy a *window*, or block of text and graphics:

- within a frame
- between frames in the same database
- between frames in different databases.

This means that designs can be incorporated into your database without the need for rekeying. Micro Viewdata makes use of a store or buffer in the computer's memory in which the data making up the window is stored.

This facility is particularly valuable where a design is reasonably complex – for example, the butterfly drawn on frame 1c of the database **DEMO**.

If you have not already done so you should now copy this frame from the database **DEMO** into your own database. The method of doing this was described on the preceding pages, when it was suggested that you copy **DEMO** frame 1c to page 2 of your own database **JIM**.

You should now load this frame for editing by selecting option **1** from the Editor Menu. The butterfly appears on the top left of the screen.

# Copying a window

Suppose you want to make a copy of the butterfly directly beneath the original. To do this, you first need to mark out, or define, the block to be moved. This sort of block is referred to as a window.

The window is defined by using **<F3 8>** (define window) to mark two diagonally opposite corners. Move the cursor to H01 V02 (**Se** will appear on the status line) and mark the first corner by pressing:

**<F3 8>** (define window)

Marking the window will upset the appearance of the screen but this is only temporary. When you move the cursor, the original appearance will be restored. The top left-hand corner of the window has been defined. Move the cursor down to the bottom right corner, that is H19 V10. Although columns H18 and H19 appear blank, they do in fact contain control codes. Mark this corner by again pressing:

**<F3 8>** (define window)

The window has now been defined and its boundaries are shown by white markers as illustrated in figure 6.2. The window is the portion of the screen contained within the markers. They will disappear when you move the cursor or press any other key, but this window will remain defined until another is defined by again pressing **<F3 8>** (define window). If you do press a key, but then wish to re-examine the window you have defined, press:

**<F3 9>** (highlight window)

and the highlighting will be restored.

If you make a mistake in defining the corners of the window, you can simply return to H01 V02 and mark the first corner. Then redefine the second corner at H19 V10.

The window is always defined by the cursor positions of the two most recent presses of **<F3 8>** (define window).

*Note*: If only one corner of the window has been marked the program assumes that the other corner is located at H00 V01, which is the home position of the cursor. Thus in the example marking the corner at H01 V02 introduces highlighting which may affect the screen appearance until a key is pressed.

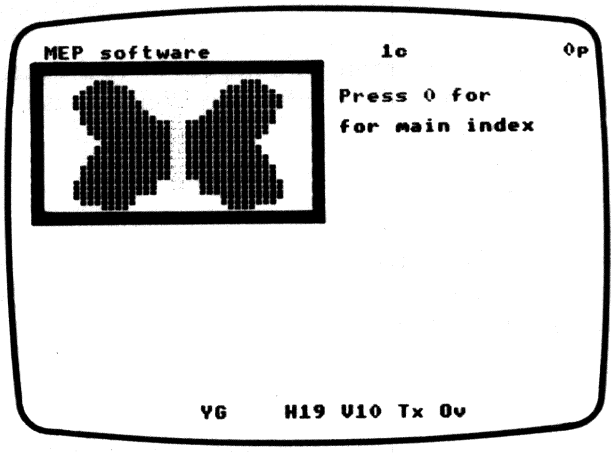



*Figure 6.2 Window highlighting*

The intention is to transfer a copy of the butterfly design below the original. You can now make a copy of the original design by pressing:

**<F3 6>** (copy window)

There will be no change in the screen, unless highlighting is on, but the computer has stored the window in a buffer. Move the cursor down to H00 V12 – the cursor defines the top left-hand corner of the window. The butterfly can be copied into the appropriate position by pressing:

<F3 7> (paste window)

The location of the window is defined by the cursor. Further copies of the design can be made because it is still stored within the buffer. This can be demonstrated as follows. Move the cursor to H19 V12 and again press:

<F3 7> (paste window)

Another butterfly appears.

A very useful command allows you to cancel the effect of the most recent editorial change of the screen. In the present case, for example, you may remove the third butterfly – the most recent alteration was to paste it in place – by using:

<F4 0> (undo)

This powerful command allows the editor great freedom in experimenting with screen layouts. Any undesirable change can easily be amended!

## Cutting out a window

If you want to move a design from one part of the screen to another, or from one frame to another, but don't want to leave the original in place, this too can be done. For example, the butterfly may be cut from this frame and copied to your introductory frame 0a. Check that the window encloses the butterfly as illustrated in Figure 6.2 - if it does not, redefine the corners of the window at H01 V02 and H19 V10. Now press:

<F2 8> (windowing toggle on)

Turning the windowing toggle on produces three effects:

1. `Wi` is shown on the status line.

2. You will not be able to move the cursor outside the area that you have defined and which was highlighted. Try moving the cursor to H20 – the cursor simply drops down to the next line as it usually does when the edge of the screen is reached. Within this window you will be able to edit as usual, that is, graphics, text and control codes may all be written on the screen.

3. The command **<F3 5>** (cut out window) can be used.

So cut out the window using:

**<F3 5>** (cut out window)

and turn off the window effects using:

**<F2 8>** (windowing toggle off)

The design is stored in the buffer as before but this time it has been removed from its original frame. If you don't want to remove it permanently from the frame , you can abandon the screen edit by pressing **<ESC>** and then **Y**. Alternatively, you can save the newly-modified frame by pressing **<F3 0>** and then **F4**. Either way, the window design will be stored in the buffer.

You can now paste the window still being held in the buffer into frame 0a. Select:

**1** (edit a frame)

and select frame 0a for editing. When it appears move the cursor down to H02 V10, the top left hand corner of the window, and press:

**<F3 7>** (paste window)

The butterfly now graces the introductory frame.

In the examples above the frames were all contained within the same database. Because the computer stores the window in a buffer, which is a reserved space in memory, blocks of graphics and text can also be transferred between frames in different databases. Define the window as usual, and then copy it or cut it out as you wish. Abandon the screen edit (or save the frame if you wish) and select:

5 (Database selection)

from the Editor Menu. Enter the name of the database to which you are moving the window, and press <RETURN> twice. (The `Database for "COPY" to be read from` need not be specified.)

Select:

1 (edit a frame)

and call up the frame to which your window is moving. Position the cursor to define the top left hand corner of the window. Press

<F3 7> (paste a window)

and the transfer is complete.

The use of windows in Micro Viewdata is an extremely versatile facility, but there are some dangers. When a block is cut or copied you must make sure that all the relevant control codes are enclosed within the window because they are copied or cut out in just the same way as text or graphics characters. There are apparent spaces on either side of the butterfly shown in Figure 6.2, but these are in fact occupied by control codes.

If you don't copy the control codes you could find coloured graphic designs changing to white text. You should therefore check exactly where controls are placed before defining a window. You can do this by moving the

cursor round the left-hand edge of the proposed window to check that all the required control codes are included in it. (The control code or character at the cursor position will be shown on the status line.) The controls can then be marked on a screen planning chart and you can decide which ones you need to copy. Similarly, be careful when cutting out a design. Will any control codes that affect other parts of the display also be removed? Again check by moving the cursor around its right-hand edge.

## Ending the program

When you want to leave the program, save the frame you are working on, and when a menu is being displayed, press **<ESC>** to return to any higher level of menu until you reach the CP/M prompt. You are advised not to abandon frames unnecessarily as this will quickly use up space on the disc which may be needed by other users (if you are on a network) or for other files or programs of your own until the index update utility is next run. (For a network, this utility requires all other users to stop working while the updating is taking place).

# Chapter 7
# Formatting Text and Graphics

Microviewdata allows you to move lines of text and graphics around the screen. The ability to move text is particularly useful in achieving an attractive layout.

Suppose you want to use 'FORTHCOMING EVENTS' as a heading. Type this on a suitable frame. You might well want to centre this on the screen. This can be done by pressing:

<F3 2> (centre text)

This command will centre all the text and graphics on the current cursor line treating it as a block. It does this irrespective of the cursor position. If you choose to display this heading in red, double-height, flashing text, the control codes are moved along with the text but are not counted when the computer calculates where to place the text. This is illustrated in Figure 7.1

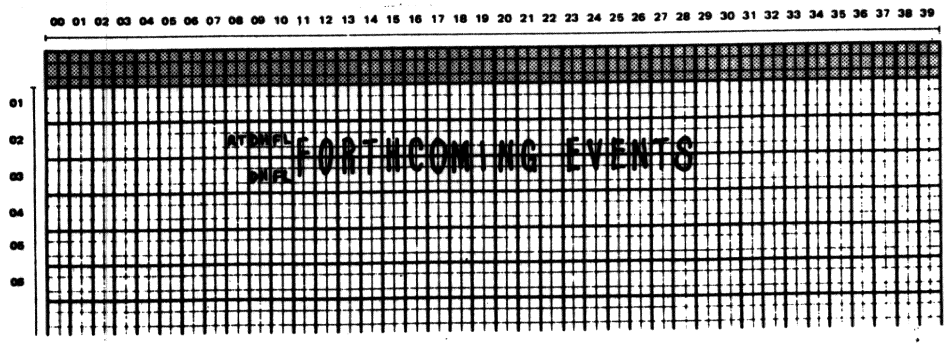



*Figure 7.1 Position of control codes*

It is also possible to move text and graphics to the right or left. Try moving the title to the left by using **<F3 1>** (move to the left) and to the right using **<F3 3>** (move to the right).

Another useful feature is the facility to insert or delete whole lines or parts of lines of information.

**<F1>** followed by **<DOWN>** will insert blanks up to the end of the line following the cursor position, and move the information it contained previously down vertically to the next line. All lines below are scrolled down as well. If any text is scrolled off the bottom of the screen it is put into a buffer. This buffer can hold only the last 5 lines that scroll off the bottom of the screen.

**<F1>** and an **<UP>** will scroll the contents of the line below the cursor position upwards causing its contents to replace those to the right of the cursor. Information in this line that is below and to the left of the cursor is lost. All lines below are scrolled up including any previously placed in the buffer (see above).

You can also move part of a line to the right of the cursor either to the right or to the left using **<F1>** plus **<RIGHT>**, and **<F1>** plus **<LEFT>**, respectively.

# Chapter 8
# Choosing Routes

## Routing

The routing structures are an especially powerful feature of viewdata systems. To explain the importance of routing let us look at the way in which information is organised on a viewdata system. Essentially a 'tree' structure is used in which general terms appear at the top and specific items at the bottom. An example is given in Figure 8.1.

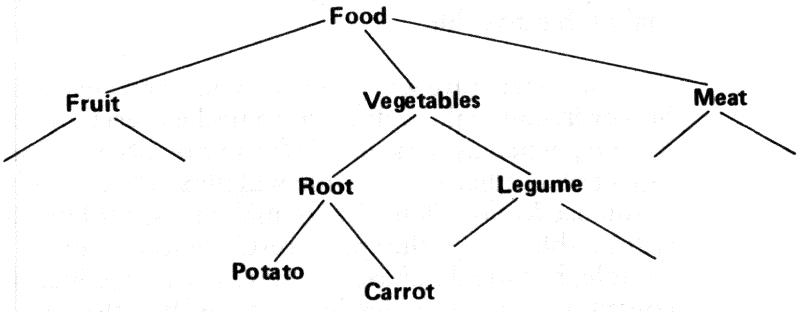



*Figure 8.1 An information 'Tree Structure'*

In a viewdata system this example would be represented as shown in Figure 8.2.

Notice that if you required information about potatoes the first index (food) does not allow you to go directly to the correct page. It does not mention potatoes but allows you to select a more specific term (vegetables). Searching by means of a series of brief indexes is a feature common to all viewdata systems. You used this method to view the sample database. There is not a detailed index within the database equivalent to that found at the back of a book. Because of this, routes (links) are needed to join indexes to indexes and indexes to information.

Routing also lets users reach the same piece of information from different 'directions'. Later we will show you how various searches can be made to find information about British Rail train times.

Viewdata databases are designed for browsing – you do not have to supply specific terms. You are able to skip from one topic to another, and again it is the routing which makes this possible.

The same structure which allows you to browse easily, however, can make it difficult to find material produced by one particular person or information about a specific aspect of a topic. An example will illustrate this point. If you use Micro Viewdata to publish a school magazine you will be able to find the sports results without any trouble, but the database will not have any pointers to contributions written by David in 4A. It is also difficult to find references to say the kit needed for a field trip to North Wales – if you cannot find the information is it because it doesn't exist, or because you haven't looked in the right part of the database? In both cases you may have to resort to guesses and hope to be lucky!

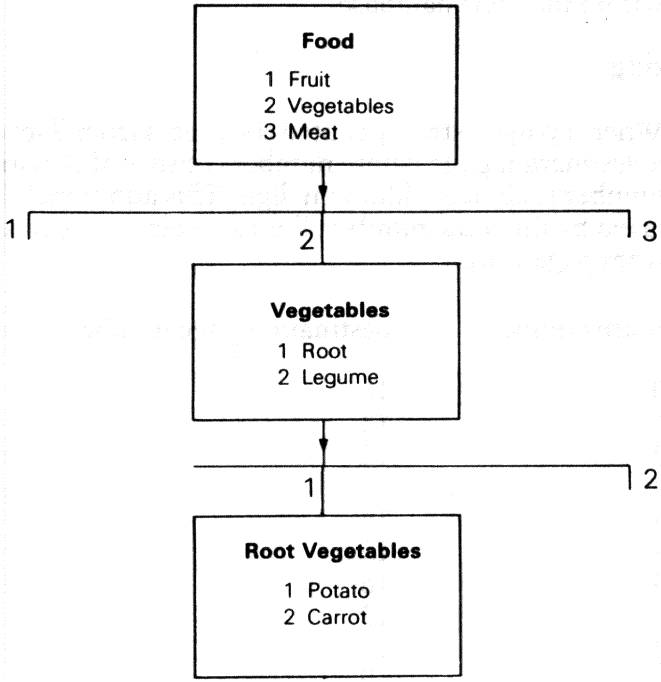



*Figure 8.2 A Viewdata 'Tree Structure'*

Other information retrieval systems allow much more efficient searches for author and topic specific information to be made. This does not detract from the value of viewdata – each system has its strengths and weaknesses. The point is that each should be used appropriately.

In the next section the mechanics of routing pages and frames is described. A viewdata system can have 2 types of routing, free and strict. They are not mutually exclusive, in fact they are complementary, and both types can exist within the same database.

## Strict routing

When a page is strictly routed the routes from it lead to a destination page whose number consists of the original number with one additional digit. This additional digit is given by the route number. For example the strict routes from page 1 are:

| route number | destination page number |
|---|---|
| 0 | 10 |
| 1 | 11 |
| 2 | 12 |
| 3 | 13 |
| 4 | 14 |
| 5 | 15 |
| 6 | 16 |
| 7 | 17 |
| 8 | 18 |
| 9 | 19 |

The routes from page 15 are:

| | |
|---|---|
| 0 | 150 |
| 1 | 151 |

etc.

You don't have to use all of the available routes from each page.

A database constructed using only strict routing is shown in Figure 8.3. You can see that the diagram looks rather like a family tree. In fact the pages are referred to as parents and filials. For example page 1554 is the parent of page 15541 while page 15541 is the filial of page 1554. If you want to delete page 15541 from the database the only other page directly affected is 1554 whose route number 1 leads to this page. The convention of strict routing means that there can be no other routes into 15541. When you delete page 15541 you have only to remove any references to it from page 1554. Thus one of the strengths of this type of structure is the ease with which it can be maintained.

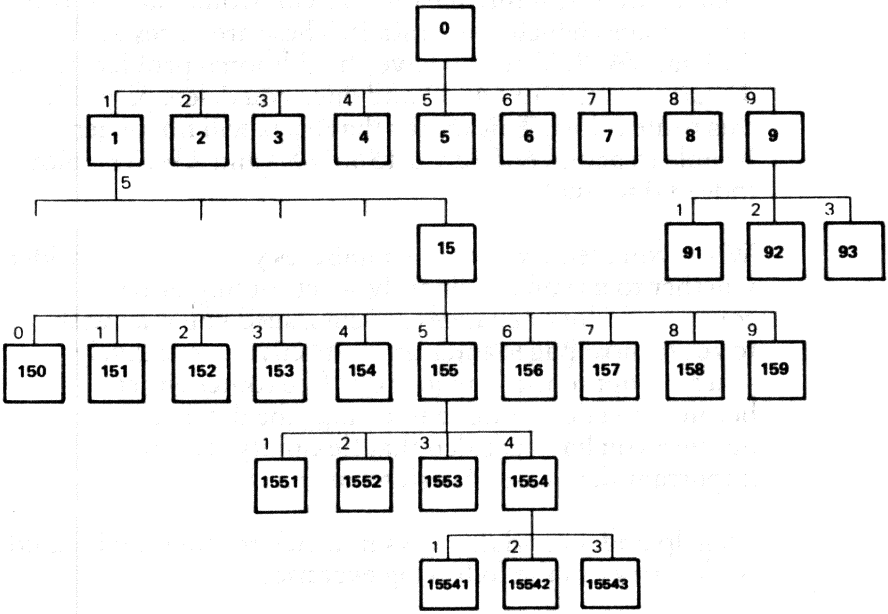



*Figure 8.3 An Example of Strict Routing*

## Free routing

Free routing allows the information provider complete freedom in the structuring of the database. Figure 8.4 shows a small database in which free routing is used. Here you can see that route 1 from page 0 leads to page 156 and route 5 from 156 leads to 777 etc. In fact the whole thing looks very confusing and the designers would need to be very careful in setting it up.

This type of structure is very flexible but can lead to problems when the information provider wants to delete existing information from it, or add a new category to it.

You will see that if you wish to delete page 15 the complicated structure means that you would have to edit all the pages which route into it. These are pages 777, 234 and 7658. You also have an additional problem in that 15 has a route into 64832 and once you delete page 15, this route is lost. This means that users will no longer be able to access 64832 via 156, 3854 and 234. The plot indeed thickens!

When you create your own databases you should consider whether to use predominantly strict routing or free routing. If a lot of changes are envisaged you may wish to route most pages and frames strictly. Alternatively, you may opt to use a majority of free routes either because you don't intend to change the database, or because you have decided that flexibility is more important than ease of maintenance.

To help understand the ways in which routing can be used, try to carry out the following exercises.

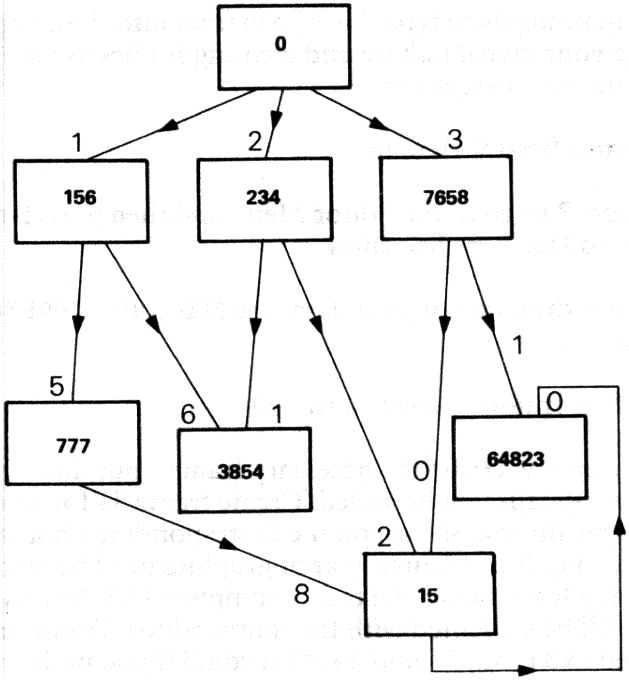



*Figure 8.4 An Example of Free Routing*

## Strict routing exercise

To help you work through the following exercises you should photostat Appendix C. Cut out all the frames shown on your photostated sheets, and then put the ones labelled 'Strict routing exercise' on a flat surface – a large piece of paper will do. If you look at the indexes, routing choices and information you should be able to work out the structure of the database. Draw lines between the cards to represent routes. Write the route numbers against the lines. When you are happy with the result compare it with the sample solution given in Appendix D. You will find that this database uses strict routing.

The next step is to type the information into the computer using your own database and creating frames as necessary. The necessary steps are:

- load Micro Viewdata
- press 2 to go to the Editor Menu and then press 5 to go to Database Selection
- enter the name of your database (JIM). Press <RETURN> twice
- select option 2 (create a frame)

You can now create the necessary frames, but this time routing details will be added. Create frame 3a for example and type the text shown on the corresponding photostated frame (3a). No coloured text or graphics need be involved. Save the frame when the text is complete <F3 0>. As usual, you will be presented with the routes editor. Frame 3a is routed to 31, 32, 33 and 34. You could if you wish type in page numbers against each route, but Micro Viewdata has been programmed to insert strict routes for you if you require.

Press S and the question Strict routing (Y/N)? will appear. Confirm your choice by pressing Y. You will now see that the automatic choice for strict routing has been displayed for route 0. You can see the other strict routes by pressing <RETURN> once for each of the nine others.

In this example only routes 1, 2, 3 and 4 are required, so delete the routes selected automatically for route 0 and for routes 5 to 9. The unwanted routes are deleted by moving the cursor to the appropriate positions and using the <DELT> key. When you have finished editing the routes, the four entries left should appear as in Figure 8.5.

```
-----------------------------
I Routes Editor Frame 3a I
-----------------------------

Routed to:

0 : ......... 5 : .........

1 : 31....... 6 : .........

2 : 32....... 7 : .........

3 : 33....... 8 : .........

4 : 34_...... 9 : .........

Press <S> for strict routes.
Use the cursor keys to move to each
entry. Press F4 to confirm details.

<ESC> returns to editing the frame.
```

*Figure 8.5 Selecting Four Strict Routes*

If you want to check that the routing agrees with the directions on the frame press:

`<ESC>`

You will be returned to the frame, but the routing details you have entered will be retained. Press:

`<F3 0>` (save frame)

to go back to the routes editor.

Store the frame with the routing details shown in Figure 8.5 by pressing:

`<F4>` (confirm routing)

The map in appendix I shows what happens when you are editing a frame. It is only when you press **<F4>** that the frame is actually saved.

Micro Viewdata provides a way round the problem of having to delete many unwanted routes. Create frame 11a, type the text and save the frame **<F3 0>**. Press **S** for strict routing as before but this time when the question

```
Strict routing (y/n) ?
```

appears, enter **4** intead of **Y**. This will fill all the routes up to and including route 4 strictly. All you have to do now is delete route 0. Whenever you enter a number (**0-9**) instead of **Y**, the routes will be entered strictly up to and including the route with that number.

Save the routing details for frame 11a using **<F4>** and move on to the next frame. When you have typed and routed all the pages you can use the DISPLAY program to check that the routing has been entered correctly. Select:

**0** (Utilities menu)

from the Editor Menu.

When the utilities menu appears select:

**1** (Display viewdata pages)

You can now view the database in the same way that you looked at **DEMO** in chapter 3. (Remember to select the appropriate database (**JIM**) using ***966#**, otherwise the demonstration database **DEMO** will be displayed.)

What happens when you get to the end of a branch of the database? If you have remembered that the index is on page 3 you can type:

```
*3#
```

If you have forgotten the number then you are stuck! It is very bad practice to leave users without any directions. This problem may be overcome using free routing which is discussed in the next section.

If you looked at the frame just now, reload the EDITOR by typing:

```
*910# (load EDITOR)
```

The Editor Menu should be on your screen. Then select your database `JIM` (option `5`) and you are ready to create frames for the next exercise.

## Free routing exercise

In this exercise you are asked to imagine that the database represents a two storey house, with the pages as individual rooms. This is how it works. The house has four rooms downstairs (the lounge, dining room, kitchen and hall), and four upstairs (the bathroom and landing, and two bedrooms). A possible plan for the downstairs is shown in Figure 8.6. The task is to design the house to be as convenient as possible, and then to use the routing so that you can 'move' from room to room. If you design the downstairs with the back door leading into the kitchen as in the figure, then you should draw a route from page 4 to page 11. Once in the kitchen you are able to go into the hall but you must also be able to go outside again. Two routes are therefore needed from page 11 (the kitchen), to page 14 (the hall), and from page 14 (the hall) to page 4 (the garden). Figure 8.7 shows the start of the routing structure for this example.

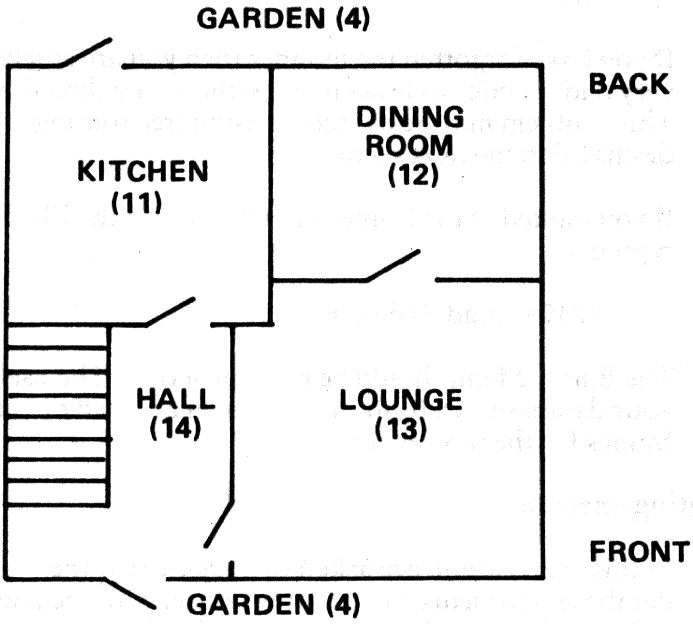



*Figure 8.6 The Downstairs Plan*

We feel sure that you will be able to produce a better house design! Do this now.

When this task has been completed find the photostated frames labelled 'Free routing exercise' and lay them on a sheet of paper as before. Draw routes between them to represent possible movements in the house, and outside. Pencil in routing information, adding or deleting routes as necessary.

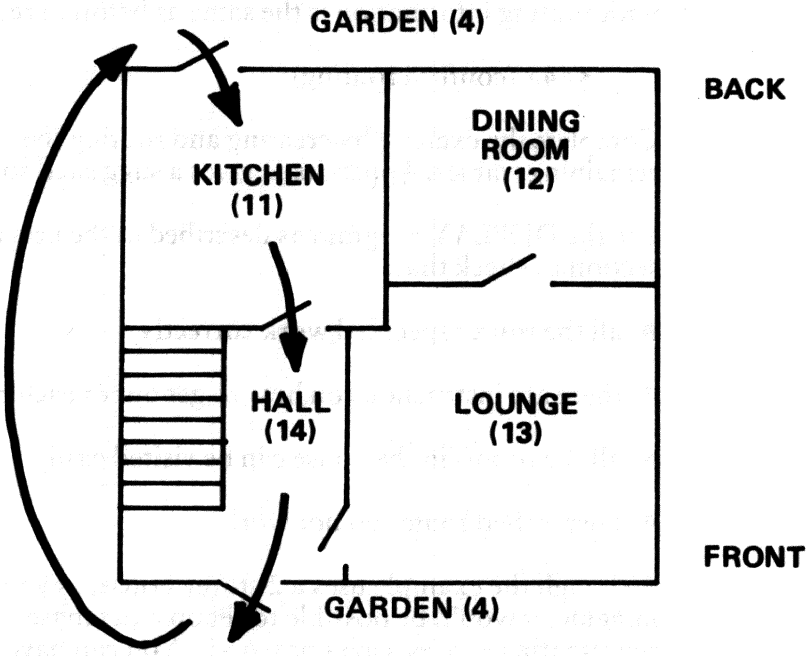



*Figure 8.7 The Start of the Downstairs Route*

For example if a third exit is needed from the hall simply add:

```
Key 3 for...
```

When all the routes have been drawn and the indexes completed, you can begin creating frames in your database (`JIM`) and typing the text along with the indexes which you have devised.

Consider the routing for frame 4a (the garden). In the example shown in Figure 8.7 there are two doors from the garden into the house, one leading to the hall and the other to the kitchen. There should therefore be two routes from 4a. Route 1 should lead to 14 (the hall) and route 2 to 11 (the kitchen). This time it is obviously no use pressing `S` for strict routing – these route numbers must

be typed in individually. The command to store the frame with routing information is the same as before. Press:

<F4> (confirm routing)

Complete the exercise by creating and routing the remaining frames. Appendix D gives a suggested solution.

Use the DISPLAY program as described in the previous section to check that:

- all the routes specified work correctly
- there are instructions on how to get out of each room
- all the rooms in the house can be visited easily
- unspecified routes do not work

Although the example uses a 2 storey house, as you can imagine, it would be possible to set up a database representing castles, caves or woods. You can have up to 10 'exits' from every 'room' and could make your adventure much more interesting by using Micro Viewdata's graphics and colour.

When you are ready type:

*910#

to return to the EDITOR. For the next exercise you will use the demonstration database supplied on the program disc itself.

## Routing the demonstration database

Do you remember that you could see only part of the database on the program disc and that some pages were hidden? The exercises in Appendix C labelled 'Demonstration database' show these frames. The task is

to work out the routing structure from the information on the frames. Lay out your photostated frames on a sheet of paper and draw in the routes as before. This time the database uses both strict and free routing and is larger than those dealt with previously. The technique is the same however. When you have worked out the structure you can check it against the diagram on the back of the screen planner sheet in Appendix H. When you have made any corrections you can begin to route the database. There is a small point to remember. Frame 58301a should have routes 1, 2, 3, and 4 entered on the index.

## Searching for Information

In just the same way as you had to plan the house with the needs of its occupier in mind, the viewdata database designer must pay careful attention to the requirements of the user. The database should be planned with these in mind. If it is to cater for different groups of users each with differing information requirements, the designer may decide to offer several routes to the same information. If you have access to Prestel or some other large viewdata system it is interesting to see how information providers manage to cater for these differing needs. For example, as an exercise, start at page ***1#** on Prestel and see how many different routes there are to the British Rail main index.

Five possible routes to this information are given below. The page numbers and routes on Prestel are regularly updated and so you will probably find that the page numbers and routes given below no longer apply. Nevertheless the example is included here because it illustrates the point that there are several routes to a given page. See if you can find your way to the British Rail main index!

First, choose route 2 from the main index:

| Page Displayed | | Route Chosen |
|---|---|---|
| 1 | Main Index | 2 |
| 10 | General Interest Index | 4 |
| 14 | Travel Holidays Sport Index | 1 |
| 140 | Rail Travel Index | 9 |
| 221221 | British Rail Main Index | |

Now, a search using the keyword 'rail':

| | | |
|---|---|---|
| 1 | Main Index | 4 |
| 199 | Alphabetic Indexes | 18 |
| 19915 | Alphabetic Topic Index Q to R | 11 |
| 199152 | Alphabetic Topic – Ra | 22 |
| 140 | Rail Travel Index | 9 |
| 221221 | British Rail Main Index | |

Next, a search using the keyword 'train':

| | | |
|---|---|---|
| 1 | Main Index | 4 |
| 199 | Alphabetic Indexes | 30 |
| 19917 | Alphabetic Topic Index T | 18 |
| 1991750 | Alphabetic Topic Trai – Tran | 11 |
| 140 | Rail Travel Index | 9 |
| 221221 | British Rail Main Index | |

Next, a search using the keyword 'timetables':

| | | |
|---|---|---|
| 1 | Main Index | 4 |
| 199 | Alphabetic Indexes | 30 |
| 19917 | Alphabetic Topics Index T | 14 |
| 1991790 | Alphabetic Topics Index Ti | 22 |
| 140 | Rail Travel Index | 9 |
| 221221 | British Rail Main Index | |

Finally a search through the information providers indexes for 'British Rail':

| | | |
|---|---|---|
| 1 | Main Index | 4 |
| 199 | Alphabetic Indexes | 42 |
| 19811 | Information Provider Index B | 16 |
| 1981130 | British... M – R IP Index | 22 |
| 221 | British Rail (Front page) | 1 |
| 221221 | British Rail Main Index | |

When the British Rail Index is examined it is found to contain a wide variety of information relating to rail travel. There is information about timetables, fares, train cancellations and delays and news items about British Rail. The fact that there is a wide range of information means that users may be accessing the British Rail pages for a variety of purposes. It is therefore necessary to provide routes which satisfy these differing needs.

For example someone may be wishing to look up train times in which case they might search using the key word 'timetable', on the other hand they may wish to look up rail fares in which case they might use the key word 'rail'. It would be interesting to see if it is possible to search for rail fares via the alphabetic subject index, using the keyword 'fares'.

One final point, if the user is a travel agent who uses the British Rail database regularly he or she would remember that the main British rail Index is on page 221221 and would be able to go to it directly by typing ***221221#**.

## Summary

Several important topics have been covered in this section of the handbook. We have described why the routing of frames and pages makes viewdata systems so powerful, but noted that despite this fact they do have some limitations. The concepts of strict and free routing have been explained and illustrated by examples. Finally we showed how the person who created the database (the information provider) can cater for a range of needs by providing a number of routes to one piece of information. You should have a firm grasp of this material before you create your own databases.

# Chapter 9
# Planning Your Viewdata Databases

## Planning a database

Once you have got the hang of how to create pages and route them you will want to create your own databases for a variety of applications. You will also appreciate that plunging into the creation of frames and pages, without planning, is likely to lead to a fumble of information, in which users will not be able to find the required item.

Some careful thought at the outset will ensure that Micro Viewdata is used to its full potential. One of the first questions you should ask is, 'Is viewdata appropriate for the information I want to distribute?' For instance it may be preferable to display brief messages about cancelled visits, meetings etc. on a noticeboard or blackboard. If you decide that Micro Viewdata is suitable further questions arise. For example:

> *How many frames do you need to display your information?*

You should bear in mind that you may want to add to the information in the future. It is possible to extend a database simply by adding new frames to it, but the amount of available space on the disc will limit its size eventually.

Moreover, you should also bear in mind that space should be allowed for jotter and carousel files. These are discussed in the next chapter. Here are some figures which will help your calculations. A single frame needs 1024 (1K) bytes of storage space. A jotter file will take up space according to its size, for example a five-frame jotter will take 5 frames of space, and a 20-frame jotter

file takes 20 frames of space. A very large carousel file will take up no more than 3K bytes.

*Does the information have general or limited interest?*

The nature of the information will also influence the size of the database. If for example you are planning to publish a school magazine using Micro Viewdata you may decide that, since most people in the school could be interested in the information, one large database should be created. On the other hand you may think topics which are of interest principally to a small number of students (such as the preparation and properties of gases and history revision notes) are best allocated their own database.

*Do you know what your users' needs are and how they will use your database?*

Your decisions about routing and structure will govern the ease with which any individual can find the information which he or she wants. Sometimes it helps to provide several routes to the same information. This technique is used in large viewdata systems such as Prestel, where there are many thousands of users each with different information needs.

*How many people will be involved and how will responsibilities be shared?*

An individual may want to plan and construct his or her own database as a means of presenting a project. Where larger databases are intended, a committee could be set up to organise the project. For example, control of a school magazine could be shared by representatives of various interests within the school, with one person in charge. Separate topics could be assigned to particular parts of the structure (or nodes), and the appropriate representative made responsible for organising the work. Thus important announcements could begin on page 10,

sports results on page 20 and clubs and societies on page 30 etc. This is how information providers work on Prestel, but they would use a 3 digit node rather than 2.

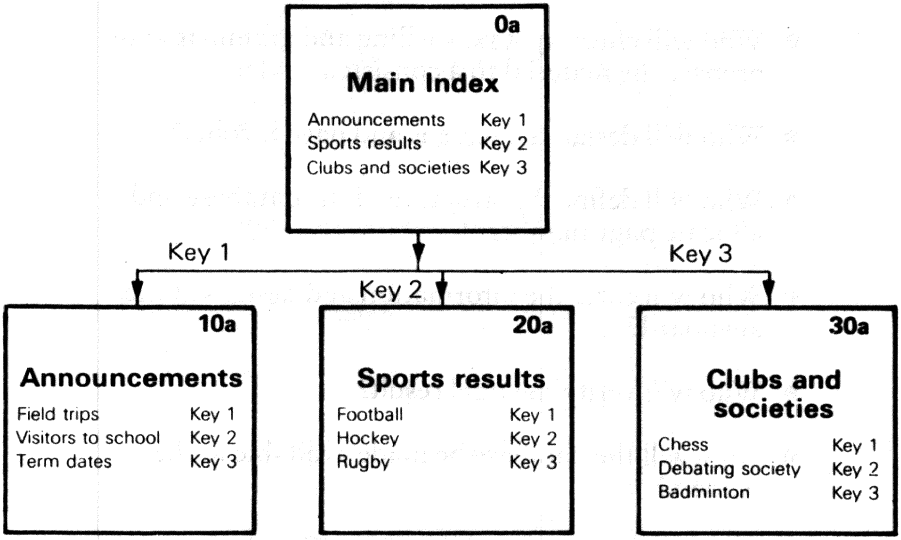



*Figure 9.1 database responsibilities*

Within each node the information provider could be made responsible for that part. Several groups could thus work independently. Later the management committee could decide whether some free routes between nodes were needed.

Between the extremes of a personal database and the school based project lies the class database. In this case the whole class may be involved in management, but the technique of groups working on independent sections of the database could still be applied.

Once the outline of the database has been established more detailed questions arise for each group. For example:

- Who will collect the information?
- Who will research, refine and write the information?
- Who will control and edit the information?
- Who will check syntax, spelling and grammar and prepare the material to a consistent style?
- Who will design the screens and page layouts?
- Who will define the structure of the database and allocate page numbers?
- Who will enter the information and designs at the keyboard?
- Who will verify the final result?
- How will the database be made available to the readers?

As you will appreciate, while Micro Viewdata can take the place of the printing press, you cannot be in the electronic publishing business without the skills of reporters, journalists, sub-editors, editors, typesetters, proof readers and creative designers – or their classroom equivalents.

Decisions on presentation should be made at an early stage. One needs to create a style – however simple – and adhere to it. You might, for instance, decide to create all menu pages with yellow text on a blue background. This helps to distinguish between menu pages and factual pages (which might be white text on a black background with double height text at the top in red). Whatever the style, its consistent use will make your pages more appealing to the eye.

It is best to begin with no more than four or five general categories which will go to make up the main index so that more branches can be added to the database if this becomes necessary.

Dead ends within the information should be avoided. Any branch of the tree structure which has a logical end to it (such as the end of a sequence of pages) should have a reference on the final page, guiding users back to the previous significant branching point or sub-index. Similarly, each sub-index should have some kind of routing instruction on it to help users work their way back up the tree to the main index.

When the planning has been dealt with you can move on to creating a database.

## Forbidden pages

When you come to create you own database, there are certain pages that you should not use. One of these is page 966, which you have already used in the DISPLAY program to change the name of the working database. If you create a frame on page 966, you will not be able to see it later!

There are certain other pages that you should also avoid using because they are reserved for special functions. These are pages 90, 99, 910, 950, 951, 960, and pages 990 to 998 inclusive.

# Chapter 10
# Jotter and carousel files

## Using jotter files

The jotter file is a very versatile feature of Micro Viewdata. A jotter file is rather like a loose leaf folder into which you can slip items of interest as you find them. You can then go back at your convenience to look at the contents, and use them as you wish.

When you are in the DISPLAY program you can add the currently displayed frame to the jotter file by pressing:

**<SHIFT/F4>** (save frame to jotter)

If you haven't got a jotter file, this automatically creates one and the following messages are displayed in succession:

```
Saving frame to JOTTER as 99a

Frame saved to JOTTER as 99a
```

The jotter file is creted on the current drive and is called **JOTTERnn.FRM**. If you are on a network system, **nn** is the hexadecimal address of the network station that the 480Z is set to. Each station on a network has its own jotter file. If you are on a standalone system, **nn** is **01**.

Every time you press

**<SHIFT/F4>** (save frame to jotter)

the frame currently displayed on the screen is added to the jotter file. The maximum number of frames the jotter can hold is 260. A message on the screen will tell you if

it is full up – you will not then be able to add any more frames to it.

When you are saving the first frame after entering the DISPLAY program, and a jotter file already exists, the following message is displayed.

```
Jotter exists. Overwrite/append (O/A)?
```

If you press **A** the frame is added to the end of the jotter file.

If you press **O** the old jotter file is deleted and a new one started. Your new frame is saved as frame **99a**.

You are still in the DISPLAY program. If you want to look at the frames in the jotter file enter:

***99#**

This displays the first frame saved to the jotter file. You can look at all the other frames in the file by pressing **#** as often as required.

NOTE: Although a frame may have been saved to the jotter as say frame **99c**, when you look at it in the DISPLAY program the header line still shows its original frame identification.

You may have created a jotter of frames taken from Prestel or some other database and wish to incorporate some of these in your current database. The method of doing this is quite straightforward. From the Editor menu select:

**3** (copy a frame)

Insert the disc with the jotter file. Don't worry about the "COPY" database, simply enter:

**99**

as the page number, and the ID of the frame in the jotter that you want to copy into the database. Press:

```
<RETURN>
```

Notice that the screen display changes to:

```
Copy from: Jotter
```

You can now enter the destination page and frame details. Press **<RETURN>** and you are able to edit, save, and route the frame.

### A jotter is a jotter is a jotter

The jotter file contains frames and is in fact a special database. It only has a few pages – page 99 and pages 990 to 998 inclusive. You should not attempt to use it as a normal database. The jotter is designed to be used as a loose leaf folder – it is particularly easy to add frames to it, and to copy frames from it. Do not attempt to change or edit the frames in it. Do not rename it, do not use the create/update an index file option, and do not attempt to update or delete a frame from the jotter file. Simply copy the frames that interest you from the jotter into a database and *then* do any editing or printing that you require.

## A Carousel File

Sometimes you may want to present a prepared sequence of frames either once or repeatedly – for example, for a presentation at an open day. Micro Viewdata has the facility to create a carousel file which works rather like an automatic slide show.

Have a look at the sample carousel provided on the distribution disc. If you are not already there, go to the DISPLAY program, select the database **DEMO** if necessary, and then press

***966#**

to see the carousel. You will see three different frames from **DEMO** displayed in sucession.

Unlike the jotter, the carousel file does not contain frames. What it contains is information on which frames you want to see, and how long you want to see each one for. You can make up your own carousel or slide show by changing this information. To do this, type:

***951#**

and you will enter the carousel editor program. Look at the screen and you will see that three frames are described in the carousel file – the three frames that you saw just now when you looked at the carousel. For each frame you want, you have to specify specify 3 items of information, the page number, the frame ID and the time (in seconds) that you want the frame to be displayed for.

Change the three entries on the screen using the **<DELT>** key, and type in the information you want. Try moving the cursor around with the **<RETURN>** key and the four arrow keys. Press the **<RETURN>** key a few more times. You will see that more lines have been added to the screen. You have just added more frames to the carousel, because each line represents one frame in the carousel. Notice that all the new frames are the default entries – they are page 0, frame a, for 5 seconds. Every line can be edited in the way already described.

The line where the cursor is can be deleted by pressing

**<SHIFT/UP>**

As you have already seen, **<RETURN>** and **<DOWN>** will add a frame to the end of the list. If you want to insert a frame part way through the list, press:

**<SHIFT/DOWN>**

this will add an entry containing default values (page **0**, frame **a**, display time 5 seconds) between the current line and the previous line.

The carousel will display each of the frames in the order given in the list on the screen. If the last page in the list is page **960**, the carousel will cycle through the frames. When it gets to the last frame (the penultimate one on the list), it will go back to the beginning. This allows you to set up a slide show that repeats itself for ever!

If the last page isn't page **960**, the carousel will stop at the last frame in the list.

If the edit of the carousel file goes wrong press:

**<ESC>**

The message:

```
Abandon Carousel edit (y/n)?
```

will be displayed. If you answer **Y** you will be returned to the DISPLAY program, and the computer will forget all the information you have just typed in. If you answer **N** you will be returned to the carousel editor.

When you have completed editing the file, press:

**<F4>**

This will save the changes you have made to disc, updating the carousel file.

## Timing a Carousel Display

Deciding on the correct display interval is a matter of judgement. Frames with a lot of text will need to be displayed for a longer time than a simple graphic design. You could adopt some rules, for example:

- simple graphic designs (3 colours or less), 3 seconds
- elaborate graphic designs (4 colours or more), 5 seconds
- frames with 20 words or less, 5 seconds
- frames with 20-50 words, 8 seconds
- frames with 50 or more words, 12 seconds

You may feel that frames with text and graphics should be treated on their merits. Whatever approach you adopt remember that to present viewers with a screen which changes too slowly will lose their attention. On the other hand a display which flashes up frames too quickly will be equally frustrating.

## Displaying the Carousel

If you enter ***960#** from the DISPLAY program, the frames in the carousel file will begin showing.

You should be in the DISPLAY program now, whether you have abandoned your carousel edit or saved it. So try pressing:

***960#**

All the frames in the carousel file will be shown in sequence, each frame being displayed for the specified time. You can stop the display at any time by pressing *****. If you then type a page number followed by **#** you will be taken to that page in the database.

You have probably just seen lots of `frame does not exist` messages on the screen! This is because the frames you have specified in the carousel file do not exist in the working database. When you edit the carousel, you will normally only specify frames that exist in a particular database. When you come to show the carousel (in the DISPLAY program), you must of course make sure that the working database is the right one, using ***966#**.

## Changing the Carousel File

You may have already noticed that ***966#** allows you to name a carousel file. You can have lots of carousel files, each one describing a different slide show. At any moment of time, there is a working carousel file, in the same way that there is a working database.

Whenever you enter a new program, the working carousel file is set to that named in the start-up file. ***966#** allows you to change it temporarily – just delete the carousel file named on the screen and type in the name you want. Note that you *must* say which drive the carousel file is on.

This change is only temporary, and as soon as you leave the DISPLAY program the working carousel file is reset to the one named in the start-up file. To acheive a more permanent change in the name of both the working database and the working carousel file, you need to alter the names in the start-up file. There are two ways of doing this:

1. use the MAKESTUP program to make a brand new start-up file, as described in chapter 2.

2. edit the start-up file – see next chapter.

# Chapter 11
# The Utilities Menu

## Introduction

Micro Viewdata has a number of features whose importance you will appreciate when you create your own databases. These are available from the Utilities Menu which is selected using option 0 of the Editor Menu. The following screen will be displayed.

```
----------------
| Utilities Menu |
----------------


(0) Editor Menu

(1) Display Viewdata Pages

(2) List Frames

(3) Print a Frame

(4) Create/Update an Index File

(5) Edit Start-up File


Press <ESC> to leave Editor.

Please select an option by number :
```

*Figure 11.1 The Utilities Menu*

Option 0 of the Utilities Menu simply returns you to the Editor Menu, while option 1 allows you to view the frames

of your working database using the DISPLAY program. If you are in the DISPLAY program you can get to the Editor Menu by typing:

```
*910#
```

## Listing Frames

It is sometimes useful to check which frames are actually present in your database – especially if one has been 'lost', that is if no routes lead to or from it, and you have no record of its number. Option 2 of the Utilities Menu allows you to list each of the frames in the database. The program will assume that you want to list the frames of the database named in the start-up file but it allows you to substitute this name with the name of another database. Press:

```
<RETURN>
```

to confirm the database name. You now have 3 choices:

- you can press `<ESC>` and return to the Utilities Menu
- you can press `<F1>`. This will list all the frames in the database on the screen. It also gives the total number of frames, and tells you how many frames have been deleted.
- you can press `<F2>` and print out this information on your printer, providing that it has been set up correctly as described in appendix J.

## Printing Frames

Option 3 of the Utilities Menu allows you to print any frame in your database on your printer.

Note, that if you are using a network system, you can only print a frame on a printer connected locally to your station (although you can list frames on a printer connected to the network server, you cannot print them using this set up). Appendix J tells you how to connect your printer locally.

Again the computer assumes that the database is the one named in the start-up file. Both graphics and text are reproduced on the printer. Background colours are not shown, and foreground colours are not shown in different tones.

When you select:

3 (print a frame)

from the Utilities Menu you will be asked to identify the frame you want to print out. Provided that your computer has been properly set up as described on the previous page, the frame you specify will be displayed on the screen, and you will be asked whether you want to print this frame. If you answer `Y`, the frame is printed.

## What an index file does

Each database has an index file associated with it. The index file has the same filename as the database but is given the extension IDX. Its purpose is to keep track of where each frame is situated. It holds information about each frame's position in the database file. It also indicates whether the frame is active or has been deleted from the database.

The index file is also used to retrieve frames from the database file quickly as it would be very time consuming to look through the whole database file each time a frame is called up, especially if it has already been deleted!

Micro Viewdata cannot access a database if the index file is missing. The index is treated as an integral part of the database and if it is missing the report **Database not found** will be displayed.

The index file is created automatically when the database is created (using option 4 of the main index). It is created on the drive nominated for the database itself. (A database file cannot span two or more logical drives.)

## Creating and editing an index file

Option 4 of the Utilities Menu allows you to:

- create a new index file (normally for a compatible database created using another Micro Viewdata system such as the version that runs on tha Acorn BBC micro)
- purge a database. This frees the space used up by frames that have previously been deleted
- copy a database either onto the same disc or onto another disc

When you select option 4 the following message appears

```
Enter name of database? C:DEMO.....
```

Delete **C:DEMO** (using the **<DELT>** key), and type in the name (including drive) of the database you want to either purge, copy, or make a new index file for. Press **<RETURN>**. You now have a choice of two options

```
(1) create a new index file
(2) purge existing database

Press <ESC> to leave EDITINDX
Please select an option by number
```

If you press **1**, the computer creates an index file for the database you have named, and then returns you to the Utilities Menu.

If you press **2**, the screen message reminds you which database you are about to process, and says that this is also the name of the new database. If you want to purge this database, just press **<RETURN>**.

If you want to make a copy of this database, you have to delete the name after **new database** and type in the name you want the copy to have (for example D:NEWDATA). Don't forget to type in the drive followed by a semi-colon. Now press **<RETURN>** and the 'database being processed' is copied into the 'new database'. The original database is still there, but now you have a copy of it, called for example D:NEWDATA.

You should make sure that the disc that you want to copy the database onto has enough space to hold the database. If it does not, you will get the message **Disc full** at the end of the copying operation. You will then need to replace the original copy of the database by copying the purged copy back, overwriting it.

## The Start-up File

The last option (**5**) of the Utilities Menu allows you to edit the start-up file by changing the names of the working database, the working carousel file and the printer driver.

The Micro Viewdata package consists of several different programs:

- the 'root' program (VIEWDATA.COM)
- the DISPLAY program (DISPLAY.COM)
- the EDITOR program (MVEDIT.COM)
- the program to edit the carousel (CAROUSEL.COM)
- the program to create a new database (NEWDBASE.COM)
- the four utilities programs (LISTFRM.COM, PRINTFRM.COM, EDITINDX.COM, EDITSTUP.COM)

When you load the 'root' program by typing

```
viewdata <RETURN>
```

after the operating system prompt,the names of the working directory, carousel file and printer driver will all be those specified in the start-up file. Every time you move between any of the above programs, the start-up file is again consulted to find out the names of the working directory, carousel and printer.

Within many of these programs you can change the current database and carousel file. For example, within the EDITOR program you can of course select any database to be your working database using option **5** of the Editor Menu. However as soon as you leave the EDITOR your working database reverts to that specified in the start-up file. This can be a little confusing.

If you want to leave the EDITOR but don't want your working database to change in this way, use option **5** of the Utilities Menu. This allows you to edit the start-up file. You delete the name and drive displayed on the screen after **database name** and type in the name and drive of the database you want. Now, when you move between programs (e.g. leave the EDITOR) the start-up file will tell the computer that this new name is the database it should use.

Normally each 480Z in a network will have its own start-up file, so that you can specify the database, a carousel file, and the IP names according to whoever you expect to be using Micro Viewdata from each individual 480Z. Selecting option 5 of the Utilities Menu allows you to edit the start-up file.

You can also choose to create a start-up file on *each* disc containing a database. This simplifies the operation as all that is needed to use such databases as the start-up database is to set the 480Z's *default* drive to the disc containing the database. For example, if the root program file VIEWDATA.COM is always on the disc in drive A and your databases are always on discs that you place in drive B, you simply press

```
B:<RETURN>
```

when you are in CP/M (after the CP/M prompt).

Then invoke Micro Viewdata by entering:

```
A:viewdata <RETURN>
```

at the **B>** prompt.

## Editing the start-up file

We have already seen how you can change the database named in the start-up file. In the same way you can alter the name of the carousel file and the printer driver. Amend these names by using the cursor keys to select each item for editing, delete the existing data using **<DELT>**, and type in the name you want.

The carousel file may be placed on any of the specified drives. For example, if you are using a dual-drive disc unit with a database on drive D, you may want the carousel file on drive B to allow as much space as possible for the database and its index file on drive D. When editing the start-up file, you must not omit to enter a drive specification for the database,carousel file or printer driver.

Frames can be printed out on a variety of printers provided that you have the appropriate printer driver. Micro Viewdata is supplied with a routine for Epson printers. If you want to print a frame using another printer and you have the appropriate printer driver, simply enter the name of the routine opposite `Printer driver`. When you want to print a frame, Micro Viewdata will use the printer driver named in the start-up file in this way.

Finally you can specify two IP names. The first is used in the DISPLAY program. It is shown at the top of all frames as they are viewed. If this entry is left blank the IP name allocated to the frame when it was created, and now stored with it, is shown on the top (header)line instead. For example, pages taken from Prestel will show the organisation responsible for putting it on the system.

The second IP name is used whenever

`2` (create a frame)

or

`3` (copy a frame)

are selected from the Editor Menu. This IP name is saved together with the text or graphics. It is displayed if the `display IP` name is left blank.

You can use control codes to alter the colour of the IP names using the keys described in chapter 4. This is especially useful if you want the IP name to blend with the colours of a particular frame.

When you have finished editing the start-up file, press <F4> and the amended file will be saved to disc and will be used to supply information whenever a Micro Viewdata program is called up.

# Chapter 12
# Prestel – an overview

If you do not have a modem you need not read this or the remaining chapters. If you have a modem, read on.

The Micro Viewdata system includes terminal emulation software, which in conjunction with a modem, allows your 480Z to act as a terminal that can be linked up with other viewdata systems.

*Viewdata* is the generic name given to interactive videotex services which are transmitted over the telephone network. *Prestel* is the public viewdata service operated by British Telecom.

Users subscribing to Prestel are given access to a large computerized database, currently containing over 330,000 frames of information. Each frame represents one 'screenful' of information. Using the appropriate equipment, such as a microcomputer running terminal software (as provided in this package), you may dial up the Prestel computer, search through the database and look at the information. You may also take advantage of other Prestel facilities such as *teleshopping* and sending messages to other subscribers.

Prestel computer terminals are situated in various part of the country and are linked together to form a network. Special telephone lines provide access points from all over the UK so that over 95% of the UK telephone population can dial into Prestel at local call telephone rates.

Newcomers to Prestel are often daunted by the sheer size of the database and its apparently never ending flow of

information. Without having a conceptual picture of how the database is structured and how it may be searched, the novice may become 'lost' and fail to find the information. This chapter aims to provide a simple broad description of a highly sophisticated electronic information storage and retrieval mechanism.

## Prestel Services

Prestel provides a number of services specifically geared to particular groups of subscribers. By coordinating the provision of certain related pages of information and by linking these pages under a common index, subscribers can be automatically guided to the parts of the database that they are interested in. Of course, subscribers to Prestel services may still access the more general information on the Prestel index. Prestel services include:

*Prestel Microcomputing*

Given the advent of the home micro, cheap reliable modems and the government initiatives in schools computing, there is a growing amount of information on Prestel of special interest to microcomputer users. The major microcomputing service on Prestel is MICRONET 800, which provides up to date news, communications facilities and telesoftware for home micro owners.

The Prestel Education Service provides a similar service for teachers and pupils in secondary education. It gives news and information on topics ranging from career options, educational information technology, courses, and new educational software. Programs designed for schools and colleges (educational telesoftware) can be obtained, and an electronic mailing service allows pupils in schools and colleges throughout the country to exchange messages.

### *Telesoftware*

The ability to download computer programs and data into your micro directly from Prestel is one of the most exciting developments in this area. Much of this material is free, whilst some is charged for. The Micro Viewdata software is designed to support the use of telesoftware, which is dealt with in more detail in Chapter 15.

### *Prestel CitiService*

This service provides information about banking, insurance, money markets, commodities, stocks and shares and others for those people using Prestel as a source of information related to finance and investments. Interest rates, commodity prices and the like are changing constantly and Prestel CitiService enables the most up to date information to be available to its subscribers. In addition, investors may purchase stocks and shares from major brokers in the City or buy currency at optimum rates – a facility known as 'telebroking'.

### *Farmlink*

This service provides farmers and those in the farming and farming-related industries with information about livestock prices, animal feed prices, crop yields, the weather, use of pesticides, fertilizers and others, together with general information to assist with farm management. It also lets them order supplies through using Prestel response frames. Farmlink is particularly useful to farmers who need to be well informed but have to spend long hours looking after their farms. It allows them to perform an important part of their business at the time of the day best suited to themselves.

Other services exist for specialist groups such as lawyers and travel agents. Some services are restricted to members of a 'Closed User Group' (or CUG for short) and are not available to general Prestel subscribers.

## Information Providers

The information contained in the Prestel database is provided by a wide range of institutions, organizations, public and private bodies, companies of all sizes, Prestel itself, central government, and others. Each organization providing information is termed an 'Information Provider' - or IP for short. Each IP rents space on Prestel and has editorial control over the information it offers, its presentation, coverage and content. Using special equipment, IPs maintain their own sections of the database directly from their own premises. Any changes they make are immediately implemented within the database, so their information need never be out of date.

Some IPs act on an agency basis by representing a group of related organizations under one identity – known as an 'Umbrella Service'.

IPs may choose to levy a small charge each time you view certain pages. These charges vary depending on the information provided. At present the maximum charge is 50p. IPs may also choose to restrict access to their pages by forming a Closed User Group (CUG). Only CUG members are allowed access to these pages and the IP may charge an extra subscription to join the CUG.

Needless to say, the vast majority of frames have no access restriction and are free to view. The printed *Prestel Directory*, supplied to all registered Prestel subscribers, provides an alphabetical list of all IPs, together with an alphabetical list of the wide range of subjects covered.

## Looking for a page

Information is stored in the form of pages and all pages are structured to form a hierachical tree structure, as shown in a simplified form in Figure 12.1. Some pages, known as *index pages*, simply tell you how to reach more detailed pages of information (like the index pages in a box), and these appear at the branching points in the diagram.

The *main index* is the 'root' page to the whole database. Starting at this point it should be possible to access, via the index and sub-index pages, all the other pages in the database, moving from the general (top of the tree) to the specific (along the various branches). By selecting from the various options shown on the index pages, you will be able to guide your search through the database to locate the information you require.

## Page Numbering

Every *page* of information has a unique page number. Each page may also consist of one or more *frames*, suffixed 'a', 'b', 'c' and others up to 'z'. Many pages contain only one frame and it is easy to confuse pages with frames! In essence, when you ask for page number 1234 to be displayed, what actually appears on your screen is frame 1234a.

Pressing either the function key **<F4>** or the **<RIGHT>** key will cause the next frame in sequence to be displayed.

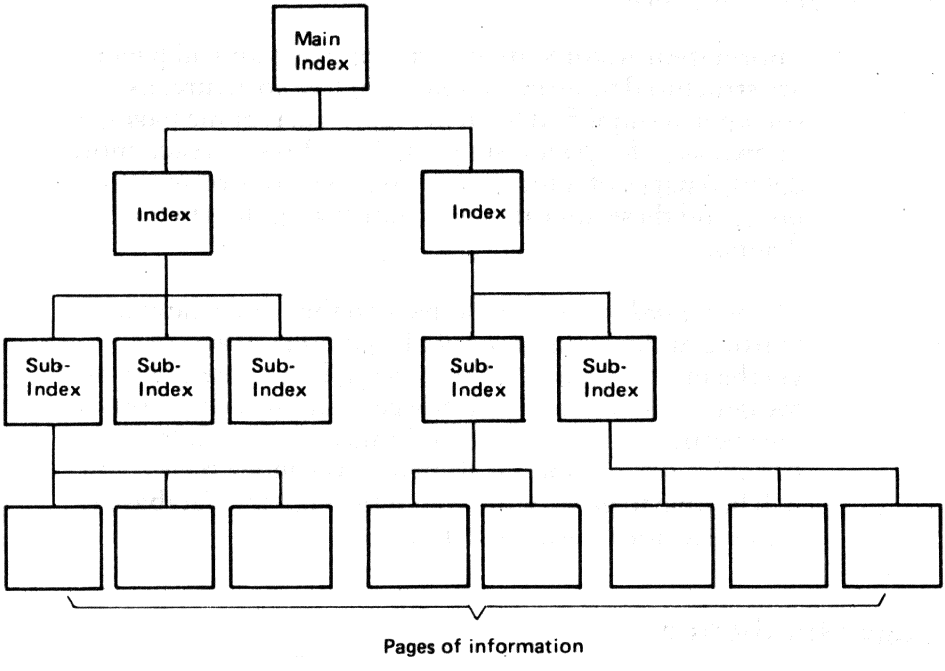



*Figure 12.1 Hierarchical 'tree' structure*

## Routing

If you know the number of the page you want to look at, you can go straight to the a frame of that page simply by pressing * followed by the page number followed by <F4>. However, with such a large database as Prestel, page numbers can extend up to nine digits, and keying these each time is not practical.

Another mechanism known as *routing* can be employed. Figure 12.2 shows a typical index page from Prestel and, as you will see, each option is numbered and a brief description given, sufficient to enable you to decide which general direction you wish to follow.

Simply typing the appropriate option number (or *route*) will cause the system to display the relevant page – you do not need to know its number.

Routing is used throughout the database to guide you to the appropriate section or page of information.

Each route either has an associated page number attached to it or is 'blocked' in that it leads nowhere, and will not be displayed on the screen. This information, in the form of routing instructions, is stored alongside each frame but never displayed on your screen.

Where more than ten routes are required, as is often the case with aplphabetical index pages, *double-digit* routing is employed, whereby you are asked to press two keys to select any given option. For example, if route '27' is chosen, it will first take you to route 2 from the page you are viewing and then automatically to route 7 of the subsequent page. To prove this for yourself, select just the first digit of a double-digit route when you are next on Prestel and see what happens.

## Related Information

By the careful use of routing, a number of logical paths may be defined through the database, separate in many ways to the paths suggested by the tree diagram in Figure 12.1. These logical paths are dictated by virtue of the nature of the information in question, rather than its position in the tree.

For example, suppose you are looking at train timetables. You may have to start at the main index, then select the route for general information, then select travel, then trains, then your local station and finally the appropriate weekday timetable. From here you may be

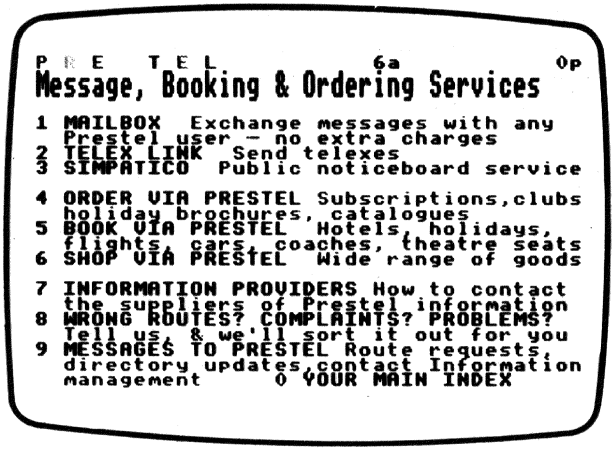



*Figure 12.2 Typical Prestel index page*

offered the choice of weekend timetables, return journey times, the main travel index or some other related path which may guide you to a completely different section of the database.

# Chapter 13
# Dialling up Prestel

This chapter assumes that you are using a suitable modem.

## Connections

Ensure that you have connected the modem up to your microcomputer correctly (refer to Appendix F).

Switch on your 480Z as normal, but remember to plug the power supply to the modem in as well. The red indicator on the modem should light. Make sure that the switch on the modem is in the "up" position.

## Getting into TERMINAL mode

To turn the 480Z into a Prestel terminal, either run the VIEWDATA program and select option **3** on the Main Menu, or run the DISPLAY program and type ***950#**.

A message similar to the following should be printed at the bottom of the screen:

```
PRESTEL Telesoftware Version X3.02
For 480Z double density disc system
```

You are now in what is called the 'TERMINAL mode'. Your computer is now working as a terminal and is ready to be conected up to the Prestel system. You are ready to dial the Prestel computer.

## Dialling Prestel

When you register with Prestel you should be given the telephone numbers of the Prestel computer terminals.

Pick up your telephone receiver and listen for a dialling tone. Now dial the number of one of the computers.

If you have to ask your switchboard to dial the number for you warn them first that you are dialling a computer and that they can expect to hear a high pitched whistle either in place of or immediately after the ringing tone. Ask them to put the call through to you when they hear the whistle.

When you hear the computer tone (the high pitched whistle), put the switch on the modem to the "down" position and replace the receiver.

## The Log-on Page

The first page you will see will ask you to type in your CUSTOMER IDENTITY. Each character you type will be echoed back to you as a hyphen. Nothing will happen until you have typed ten characters. If you make a mistake when typing in your customer identity then Prestel will allow you up to three attempts, after which you will have to dial them again.

## The Personal Password Page

When you have correctly typed in your customer identity, you will then see the personal password page. On this page you should type in your four character personal password. As with the customer identity, each character you type will be echoed as a hyphen. Nothing will happen until you have typed all four characters.

If you have typed the password incorrectly then Prestel will allow you up to three attempts after which you will have to dial them again.

## Hello Prestel

If you have typed in your personal password correctly you will now be hooked up to the Prestel computer and there will be a Prestel welcoming message on the screen.

## Goodbye Prestel

To log off the Prestel computer, go to page 90 of the Prestel database by entering **<* 90 F4>** and put the switch on the modem to the 'up' position.

You are now no longer connected to the Prestel computer but you are still in TERMINAL mode. You have two choices:

- You can enter the DISPLAY mode by typing **<CTRL/C>**
- You can put the switch back to "down" and dial up the Prestel computer again, as described earlier in this chapter.

# Chapter 14
# Using Prestel

This chapter assumes that you have logged onto Prestel, following the instructions in Chapter 13.

## The Keyboard

On the screen in front of you you will have a WELCOME message from Prestel and at the bottom of the screen you will see:

```
Press # for Main Index
```

On your computer however you can NOT use the # symbol! Instead you should use either the <F4> function key or the <RIGHT> key. When you are using Prestel on the 480Z you must try to forget about the # key, and use instead either <F4> or the <RIGHT> key. In the TERMINAL mode, the # key is in effect disabled. This is an important difference between the DISPLAY mode (that allows you to see pages in the databases you have created yourself) and the TERMINAL mode (that allows you to see pages in the Prestel database).

Prestel is merely a massive database. You look at frames in it in a similar way to that used to view your own databases. When you go into the TERMINAL mode you effectively disconect your screen and keyboard from the Micro Viewdata programs (and from the brain of your computer).

The commands that you use when you are 'in Prestel' (ie linked up with the Prestel computer) are remarkably similar to those that you have been using with the Micro

Viewdata DISPLAY program to look at your own databases. There are however differences, the main one being that in Prestel, the # key doesn't work. All the commands that you can use in Prestel are listed in the Reference Card.

The Prestel *main index* is on page 1. It is also sometimes called the 'front page', and is reached from the WELCOME page by pressing <F4> or <RIGHT>. It looks something like Figure 14.1

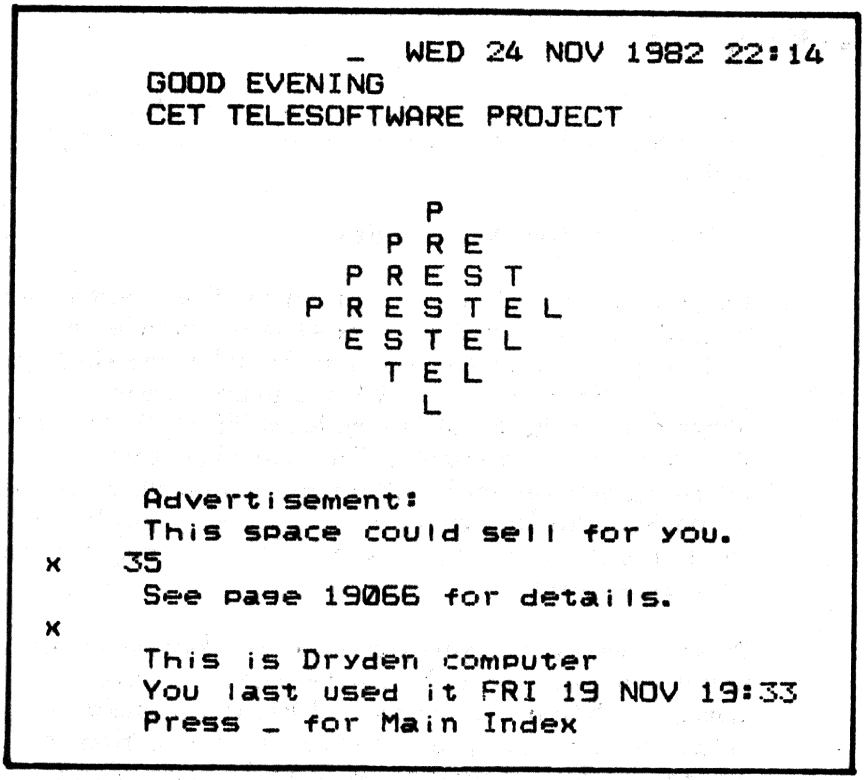



*Figure 14.1 Prestel front page*

The top line of the screen is called the header line. It contains three pieces of information. The first is the name of the organisation which has put the frame into the Prestel database. These organisations are called Information Providers (IPs) and there are about 150 of them. The Council for Educational Technology for the United Kingdom (CET) is one of these and any frames which have been put in Prestel by CET will have the letters CET at the left hand end of the first line.

In the middle of the header line is the page number and the frame number, in this case `1a`. Page numbers on Prestel can be up to nine digits long. The frame number consists of a single letter of the alphabet.

One thing you will notice about the page numbers is that all the pages belonging to each Information Provider (IP) begin with the same three numbers i.e. all CET pages will start with 211.

The final piece of information on the top (header) line is the frame charge. This is the amount you have paid to the Information Provider for looking at the frame. A large number of frames on Prestel carry no frame charge but there is always a warning on the preceding frame if you are going to have to pay. At present, the maximum charge for a frame is 50p.

## Finding Information on Prestel

There are two main ways of finding the page you want on Prestel. If you know the number of the page (`n`) you can go straight to it by using `<* n F4>`.

If, however, you don't know the page number you can use Prestels index structure.

Down the left hand column on page one you will see the route numbers and by them a subject heading. Choose the

subject you want and press the corresponding number. This takes you automatically to the page containing that information.

The one drawback of this method is that it can take quite a long time to find what you want or to find the same page again at a later date. It is often useful when using Prestel to have a pen and paper by you so that you can jot down the numbers of pages that you might want to find again. All the time you are connected to the Prestel computer (ie whist the coupler's switch is "down"), you are of course being charged for the phone call.

## Saving Frames

A facility that can be very useful is the ability to save your own copy of a frame from Prestel. You can only make copies of information on Prestel if you are sure that you will not be infringing copyright by doing so. The frames that you save are placed in your jotter file. The jotter file can hold up to 260 frames.

First of all you must make sure that there is at least 1K bytes of space free on the appropriate disc for the jotter file for holding each frame you wish to save. You can find out how much space there is on a disc using the STAT program supplied on your RML System Disc.

When the frame you want to save is shown on the screen, press:

```
<CTRL/S>
```

The frame number which the program gives it is shown on the bottom of the screen. The frame numbers start at 99a and extend up to 99z for the 26th frame. They then jump to 990a and end at 998z for the 260th frame saved. When you type `<CTRL/S>` the message:

```
>> SAVING FRAME please wait
```

will appear on the bottom line of the screen. The program will then write the contents of the screen to disc and then a message similar to:

```
>> FRAME SAVED at 99d please continue
```

will appear. At this point you can continue using the terminal as a normal Prestel terminal. The frame has been added to the jotter file, with the page and frame number shown.

## Printing Frames

One of the additional features of Micro Viewdata is the ability to print what is shown on the screen if you have a suitable printer connected.

If you want to take a copy of the Prestel page shown on your screen (and you are sure that you would not be infringing copyright by doing so), you must first of all save it to a jotter file using **<CTRL/S>**.

Later, when you have left Prestel and are back in the Micro Viewdata EDITOR program, you can print the frame using option **3** (print a frame) of the Utilities Menu. Remember that when you print the jotter frame, you must refer to it by its original Prestel page and frame number, and not its jotter file page number.

# Chapter 15
# Telesoftware

So far we have described how to look at Prestel frames, how to print them, and how to copy them into a jotter file. You can also copy computer programs that are stored on Prestel.

## CET Telesoftware

There is a library of computer programs including some provided by the Council for Educational Technology (CET) stored on Prestel in a form which is easily read by your computer. Once you have decided that you want a particular program you can copy it from Prestel, decode it, and store it on your disc ready for you to use.

At present the main index of Telesoftware on the Prestel system is on page 1542.

The main index for the telesoftware provided by CET is on page 21141, and lists the programs available. From this page you can select an individual program. Select the appropriate route and you will be taken to...

### The Title Page

The 'title page' of a program shows the name of the program, the version number if appropriate, the name of the supplier, the date, and the cost of the program. If documentation is needed to run the program it will also show what the documentation consists of, if it is included in the frame charge for the program or if it costs extra, and how to obtain it.

Normally you order the documentation by a response frame made between ESSENTIAL DOCUMENTATION needed to run the program and ASSOCIATED LEARNING MATERIALS which may also be available to supplement the program.

From a title page you will normally type **1** which takes you to ... the 'description pages'.

## The Description Page(s)

This page gives a DEWEY classification for the program, a recommended age level, and a description of the function of the program. Once again you normally press **1** to get to...

## The Header Page

This page gives technical details of the program. For example, how many frames the program consists of and the cost per frame, what machine the program will run on, minimum memory size, any special features needed, program language, and dialect. There is also a copyright notice which states what copying is and is not permitted. If you are in any doubt about copyright please contact the program supplier.

Up to now all frames have been free. You should have all the information you need to decide if you want the program. If you don't want to buy it then you can return to the main CET Telesoftware index by typing **9**, or you can go to any other page you want.

## Retrieving a Program

However, if you decide that you want to buy the program then, with the 'header page' still displayed on your screen, type

```
<CTRL/T>
```

The message:

```
>> SAVING FILE please wait
```

will appear on the bottom line of the screen. A new Prestel frame will appear on your screen automatically. At the bottom of the frame will be a message similar to the following

```
>> SAVING BLOCK 1 OF 6 please wait
```

A new frame will then appear and the message at the bottom of the screen will say

```
>> SAVING BLOCK 2 OF 6 please wait
```

This process will continue until all the program frames have been saved. After the last frame has been written to your disc the bottom line of the screen will be replaced by a message similar to:

```
>> File saved as SORT1.BAS continue
```

This tells you that the program has been succesfully retrieved and is stored on drive A under the name shown.

Occasionally, when a telesoftware frame has not been received correctly due to noise on the telephone line, the terminal will ask for it again. For each frame this will be done up to six times after which the terminal will abandon the attempt.

# Documentation

If any documentation is needed to run the program, the last frame will normally have information on how to obtain it. Follow the instructions on this frame but make sure that you have noted down the name of the progam and the price of the documentation if this is not included in the program frame charge. You will need this information in order to obtain your documentation.

Some programs have a response frame as the last frame of the program.

When you have saved the program and ordered the documentation, if appropriate, you can then look at other programs or any other pages on Prestel.

Alternatively, you can leave Prestel by going to page 90 (press <* 90 F4>), and put the switch on the coupler to the "up" position. Before you can run any other programs, you must get out of the TERMINAL mode. You do this by typing <CTRL/C> which takes you to the DISPLAY program.

# Appendix A
# What Viewdata Can Do

Large viewdata systems, as opposed to Micro Viewdata, have some unique features. For example:

- Viewdata systems are interactive. This means that you can interact or communicate with the system by sending messages or comments back. You can see the interactive capability at work in the pages which allow you to buy goods and services, deal with a bank or building society account, or make theatre, airline and holiday bookings. The device which allows you to 'talk back' in this way is called a response frame.

- One of the exciting interactive aspects is the facility for linking up with another remote computer. The viewdata system can provide a 'gateway' to other systems, which may hold information or programs which allow you to manipulate the information. This facility can save you dialling up and logging onto another computer system – you would not need to find or remember the telephone number for each one. One slight drawback is that you may find it so easy to do this that you do not notice the page or database charges made by the other computer system! Since they can be anywhere in the world, it could be costly if you forget to look.

- Updating any of the pages is fairly easy, and any IP can make changes whenever the information needs to be altered. Most pages are, therefore up to date, although if the date and time are not shown, you have no way of knowing when they were last checked.

- Viewdata systems are ideal for browsing – just like an encyclopaedia. In fact, they are often very enjoyable because you can discover information of interest without really looking for it.

- Time-shifting is one of the most useful features of many computerized information and delivery systems. You can dial up and access their information at any time of day, on any day of the week. For example, you may want to order some goods during the evening or you may want some information for homework at the weekend, when libraries nearby may be closed.

- Sending messages to other people who are subscribers to the same systems is an added feature of many viewdata systems – a form of electronic mail. Usually, the messages must be fairly brief, but if you know people who have the same system, it can be useful to be able to leave a message for them to collect the next time they log on. Of course, urgent messages are better sent by telephone or letter: the computer does not ring or knock on the door when it has received a message for you!

- Viewdata systems are generally large enough, geographically, to be called regional or national. The centralized service means that many people in different parts of the country can use the same system. It is rather like being able to visit a central library without needing to travel there.

- Most of the national viewdata systems can now be accessed by dialling a local rather than long distance telephone number. British Telecom provides a system which makes this possible.

- Software can be sent on a viewdata system: Prestel calls its service 'Telesoftware'. You can examine the details of a computer program, sometimes have a look at how it works, and then ask for it to be sent to

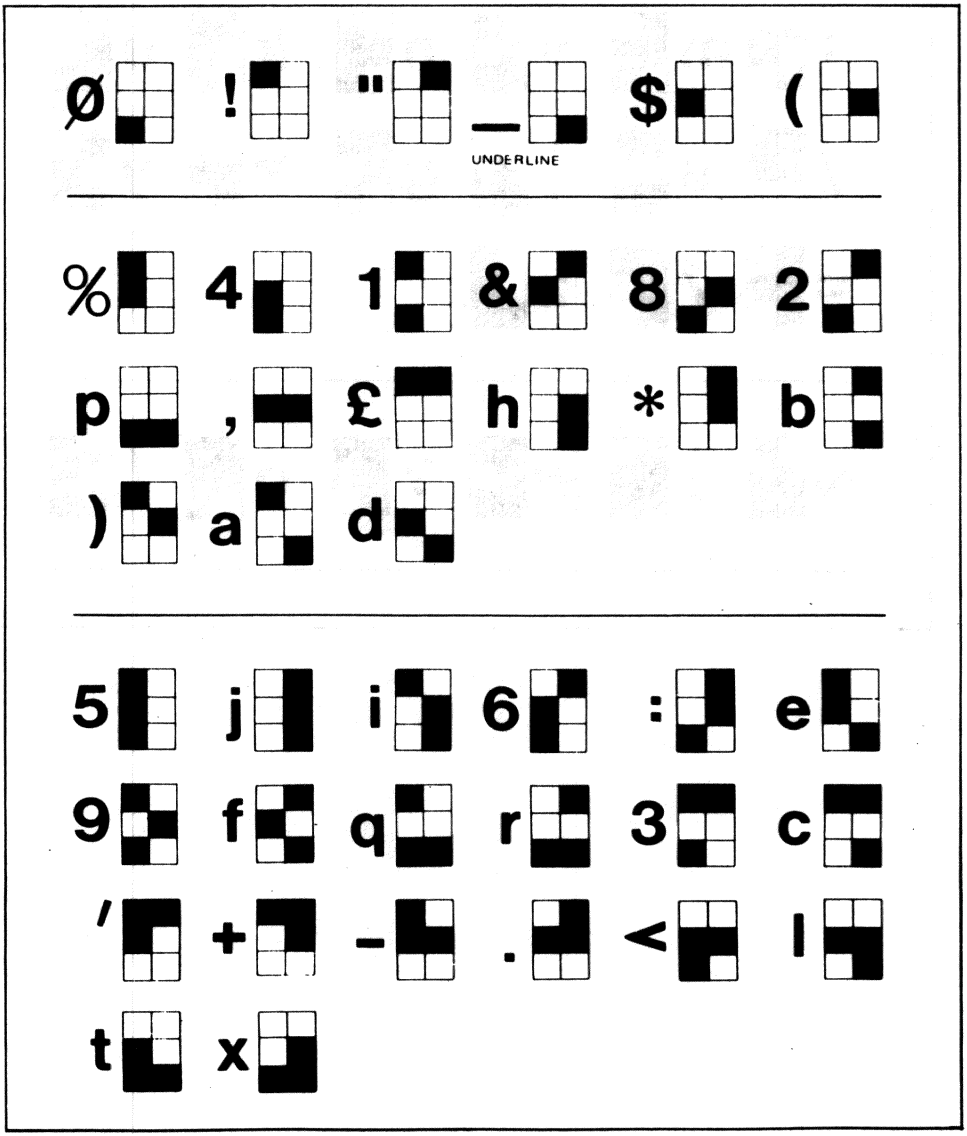
your machine where you can save it onto a disc or cassette for your own use. Some systems allow texts to be sent in the same way, so you might receive the documentation for the program by the same means.

- Passwords are used in all remote systems so that a subscriber can feel that there is some security and protection. Anyone not knowing your password cannot operate the system on your behalf, incur charges or read your mail.

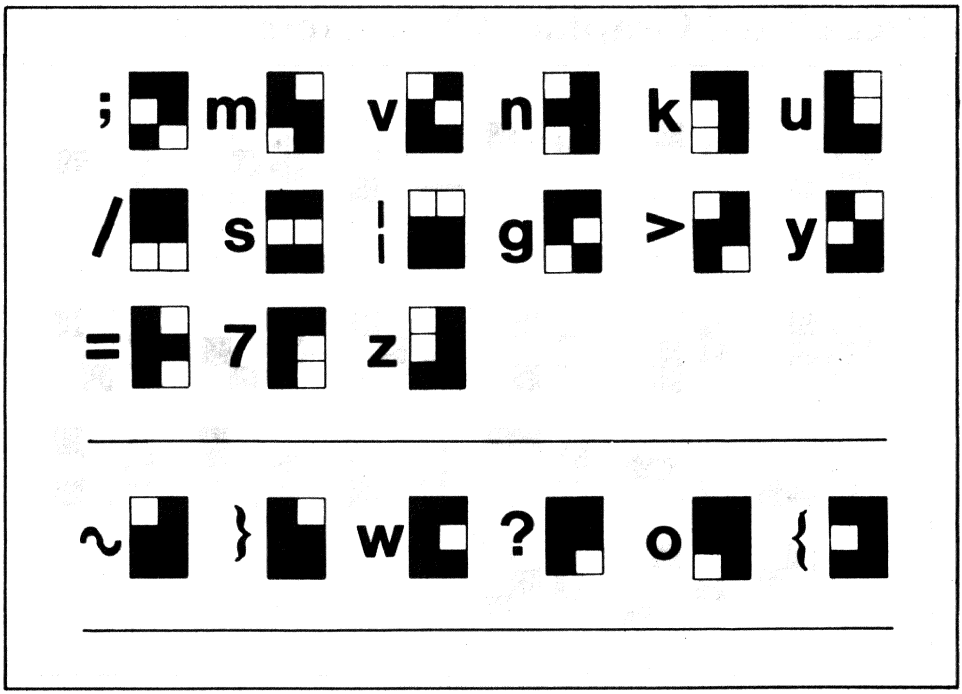
- Closed User Groups are those subscribers who have privileged access to particular pages provided by an IP. Your school, for example, might decide to make all the parents a Closed User Group so that teachers or parents from another school could not see any of the pages you school provides on the county viewdata system. Being a member of a Closed User Group does not restrict access to other pages, but it does offer the chance to provide pages and services to that group alone.

- Many of the national or public viewdata systems are run by organizations called 'hosts' because they merely act as the host for a collection of independent IPs. A host is like a supermarket or newsagent, providing space for others to display their wares. Prestel is a host for over 400 separate companies wishing to distribute information – the IPs.

# Appendix B
# Predefined Graphics Characters



## Predefined Graphics Characters (continued)



# Appendix C
# Routing Exercises

## Strict Routing Exercise

# Strict Routing Exercise (continued)

## Strict Routing Exercise (continued)

MEP software 13a 0p

The school's staff

G K Swythe MA ..... Headteacher
Miss M E Young BA ..Deputy head
R U Thin .....Senior Master
etc.

MEP software 14a 0p

School Sports and Activities

Sports ..... 1

Other Activities....2

MEP software 141a 0p

School Sports

MEP software 142a 0p

School Activities

# Free Routing Exercise

## Free Routing Exercise (continued)

## Free Routing Exercise (continued)

# DEMO Database Routing Exercise

# DEMO Database Routing Exercise (continued)

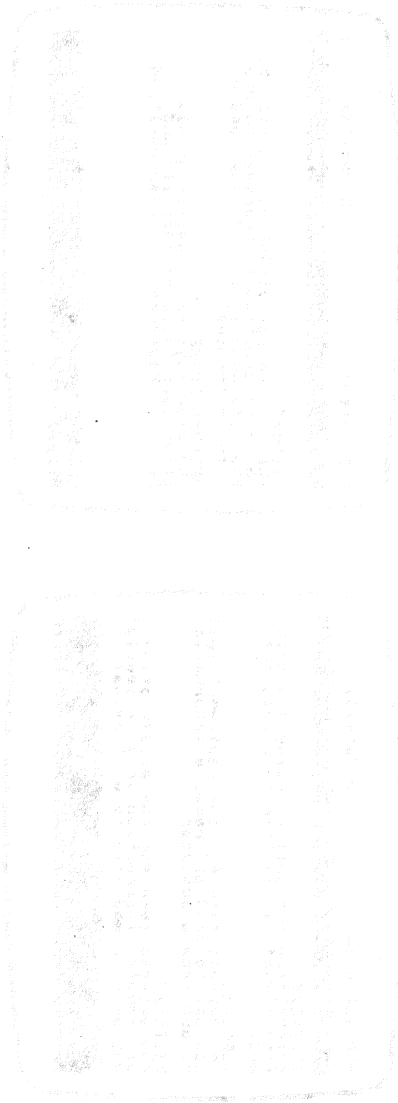
# DEMO Database Routing Exercise (continued)

# DEMO Database Routing Exercise (continued)

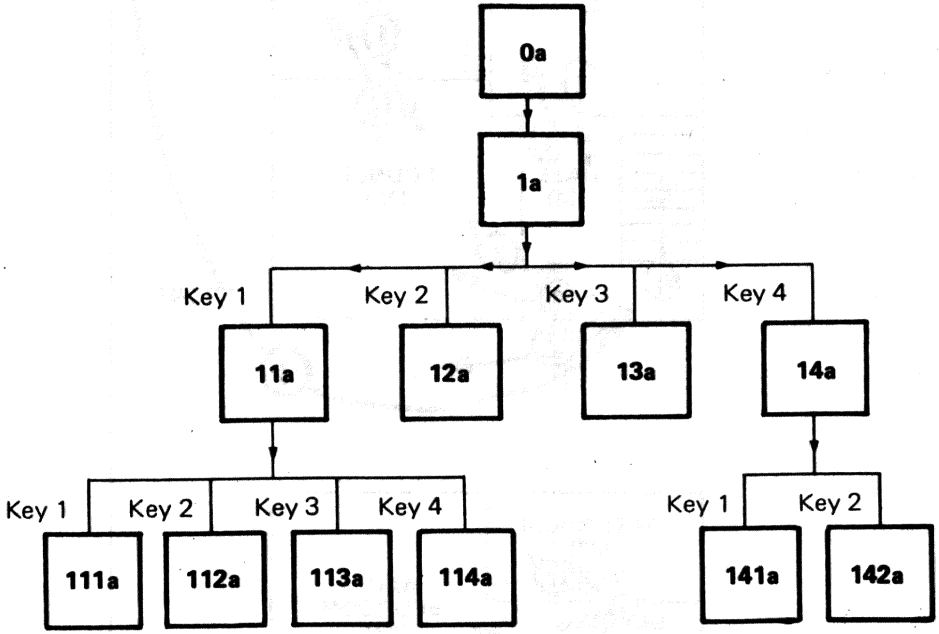
# DEMO Database Routing Exercise (continued)

# DEMO Database Routing Exercise (continued)

# DEMO Database Routing Exercise (continued)

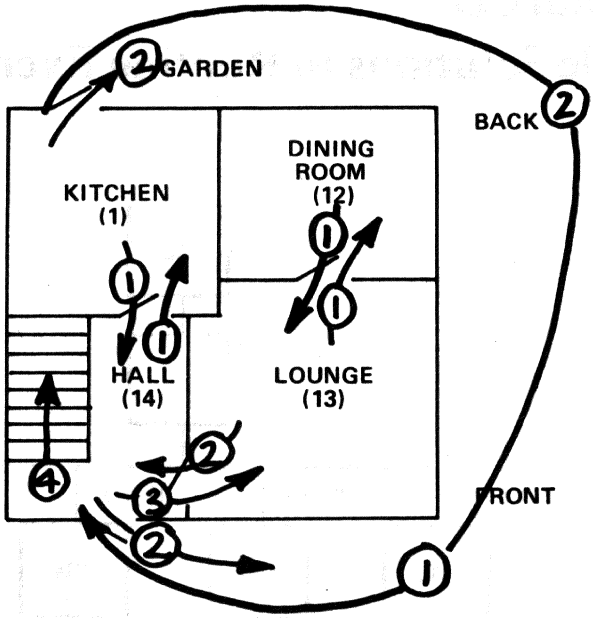


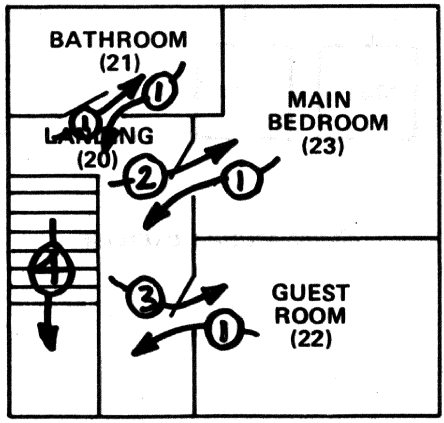
# Appendix D
# Sample Solutions to Routing Exercises




***Strict routing exercise***

## Sample Solutions to Routing Exercises (continued)




GUEST ROOM

*Free routing exercise*

# Appendix E
# Registering with Prestel

## Introduction

If you have not received a Prestel 'Welcome Pack' with this manual, then your first step is to contact your local Prestel Centre. The 'Welcome Pack' should include a Prestel Application Form.

To contact your local Prestel Centre, dial 100 during normal office hours, and ask the operator for freefone 2043.

The Prestel Centre will want to know your name, address and telephone number, and the type of Prestel equipment that you will be using. You should tell them that you are using a microcomputer, manufactured by Research Machines, model type RML 480Z. Please also tell them whether you will be using an acoustic coupler or a modem.

Your Prestel Centre will then send you a 'Welcome Pack' which should include an application form.

## The Prestel Application Form

You should complete the application form and return it to your local Prestel Centre When you want your registration to commence. Your quarterly subscription is charged from the date your form is received by the Prestel Centre. If you are not yet ready to use the Prestel service, then you can delay returning the application form until about one week before you want the service to commence.

Prestel will send the following information to the person named on the application form:

Customer Identity
Personal Password
Account Number
The names and the telephone numbers of the Prestel computers that you can access

As soon as you have your customer identity and your personal password you can use Prestel.

## The Personal Password

When you first register with Prestel they will allocate you a personal password which you will have to use every time you log-on to Prestel. It is advisable to change this password regularly so that unauthorised users can not use your account.

To do this, go to page 920 by keying <* 920 F4> and follow the instructions displayed on the frame. You will need to do this on EVERY computer on which you are registered. If you lose or forget your personal password then you will have to write to your local Prestel Centre asking them to advise you of it. Prestel will only accept such requests in writing and will send the notification to the person named on the application form. You should always keep your personal password confidential.

# Appendix F
# Connecting Your Modem

When you order your modem, please inform the supplier that you will require a serial cable that will fit the 480Z. If in any doubt, contact Technical Support, Research Machines Ltd, Mill Street, Oxford.

The serial data cable from the modem will plug into one of two sockets, depending on whether you have a disc drive plugged into your 480Z:

- If so, the cable will plug into the serial output socket on the disc drive.
- If not, the cable will plug into the SIO4 socket on the back of the 480Z.

The phone lead running from the telephone must be followed to its socket, unplugged, and plugged into the modem, and the phone lead from the modem must be plugged into the socket vacated by the telephone lead.

Now plug the modem power lead into a mains socket; the red indicator on the modem should light. If this does not happen then the modem is probably faulty.

# Appendix G
# Videotex Record Format

## CET Interchange Format

The Videotex record normally consists of a 1024 byte block of data. The data consists of 104 (68 Hex) information bytes, followed by the videotex frame data and terminated by padding bytes if needed to extend the record to 1024 bytes.

The first column is the 'byte pointer', the second the number of bytes in the field.

`0 1 Record Type`

0 – 1024 byte fixed length
All other values undefined

`1 1 System Type`

0 – Undefined videotex format
1 – Interactive Videotex Level 1
2 – Teletext Level 1
FF hex – Not implemented

`2 4 Page Number`

Top bit unset – Legal page number
Top bit set – Provisionally deleted
FFFFFFFF hex – Unused page

**6 1 Frame ID**

0 – Reserved
1 to 26 – "a" to "z" for system 1
1 to 254 – Sub-page number for system 2
FF hex – Unused page

**7 3 CUG**

All values are legal
2 – Public access
FFFFFF hex – not implemented

**10 1 User Access**

0 – No
1 – Yes
FF hex – Not implemented (Yes)
All other values are illegal

**11 1 Page Type**

105 – i – Information
97 – a – Response
100 – d – Dynamic
111 – o – Overlay
110 – n – Control
102 – f – First
115 – s – Subsequent
108 – l – Last
FF hex – Not implemented
All other values are undefined

**12 4 Price**

All values are legal
FFFFFFFF hex – Not implemented (Op)

**16 50 Routing**

10 x Page Number + Frame ID
Page Number – FFFFFFFF hex –
Blocked route
Any 31 bit number -
legal page
All others illegal

Frame ID – If system type 1 then must be 1 – 26

If system type 2 then must be 1 – 254 or FF hex for blocked route

**66 6 Last Update**

Year – All values are legal
0 – 1900
FE hex – 2154
FF hex – Not implemented

Month – 1 to 12 are legal
FF hex – Not implemented
All other values are illegal

Day – 1 to 31 are legal
FF hex – Not implemented
All other values are illegal

Hour – 0 to 23 are legal
FF hex – Not implemented
All other values are illegal

Minute – 0 to 59 are legal
FF hex – Not implemented
All other values are illegal

Second – 0 to 59 are legal
FF hex – Not implemented
All other values are illegal

`72 4 Accesses`

All values are legal
FFFFFFFF hex – Not implemented

`76 24 IP Name`

Teletext codes only
All values > 127 are illegal apart from FF hex
All FF hex – Not implemented

`100 4 Data Length`

0 to 920 for system type 1 and record type 0
920 for system type 2 and record type 0
Any value if record type NOT 0

`104 ? Frame Data`

All values > 127 are illegal for sytem types 1 & 2
Codes are according to system type
Data is for lines 1 onward and does not include the header line (line 0)

`? ? Pad Chars`

Only FF hex is legal

Notes:

1. The four byte frame numbers will allow for 4,294,967,296 frames.

2. An 'Unused Frame' has both the page number and frame ID set to FF hex.

3. A 'Blocked' route has both the page number and frame ID set to FF hex.

4. The 'System Type' byte currently has two defined values:

- Viewdata format – level 1 (for example, Prestel). The data is stored in the format defined for International Interactive Videotex. This format includes escape sequences and is used to produce a display of 22 lines each having 40 character positions. Because of the escape sequences in the data stream the total character count per frame is variable.

- Teletext format – level 1 (for example, Ceefax and Oracle). The data is stored woth embedded serial attributes, each attribute occupying a displayed character position. None of the character codes has the top bit set. The displayed screen consists of 23 lines of 40 characters and thus contains 920 bytes. See 'Broadcast Teletext Specification' September 1976.

5. All 3 and 4 byte numbers are stored in unsigned binary format with low byte first.

6. All values in brackets after 'Not implemented' are the values the field should be treated as when reading the frame. That is, if 'User Access' has been left 'Not Implemented' by one viewdata system then the frame can be read by another viewdata system which checks the user access field. This is because it is treated as 'YES' access.

7. Before 'System type 1 information' frames are displayed, a Clear Screen (CS) must be performed at the terminal. Otherwise there will be a combination of the previous and the current frame displayed on the screen.

8. 'Response fields' are specified within the 'Response' frame type by a Clear Screen (OC hex) character marking the start and end of the field.

9. 'Dynamic' frame types are displayed automatically in order until a non-dynamic frame is encountered.

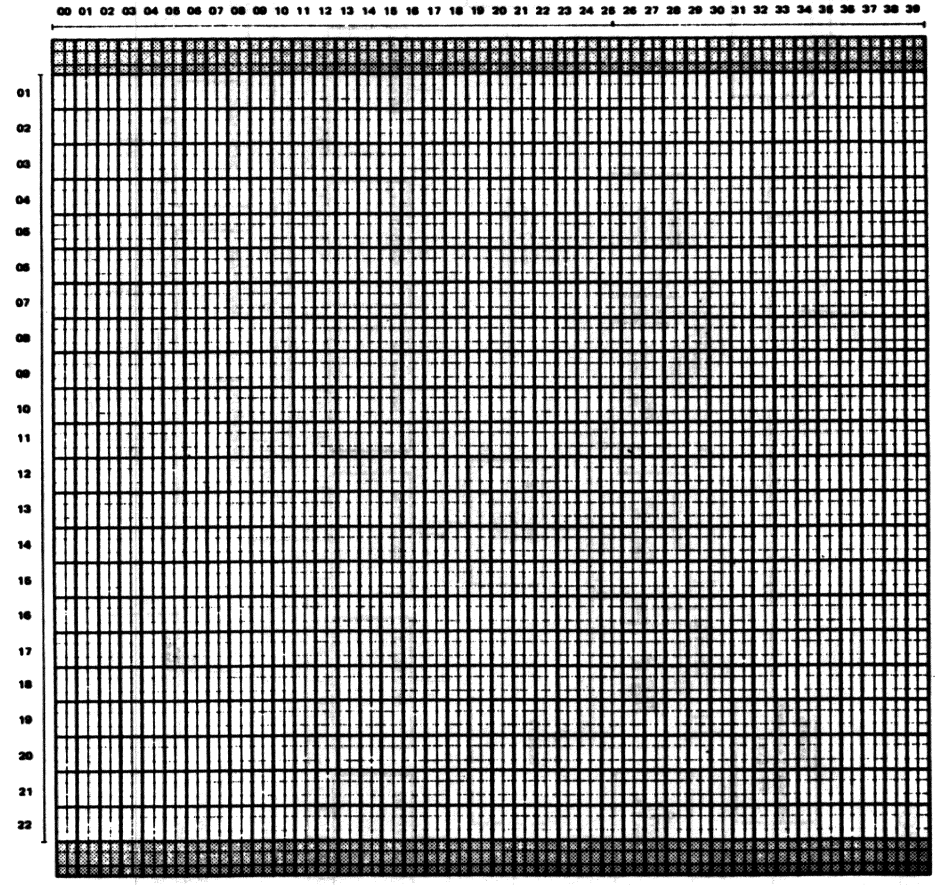
10. 'Overlay' and 'Control' frame types are for 'Gateway' use.

11. 'First', 'Subsequent' and 'Last' frame types are for 'Telesoftware' use.

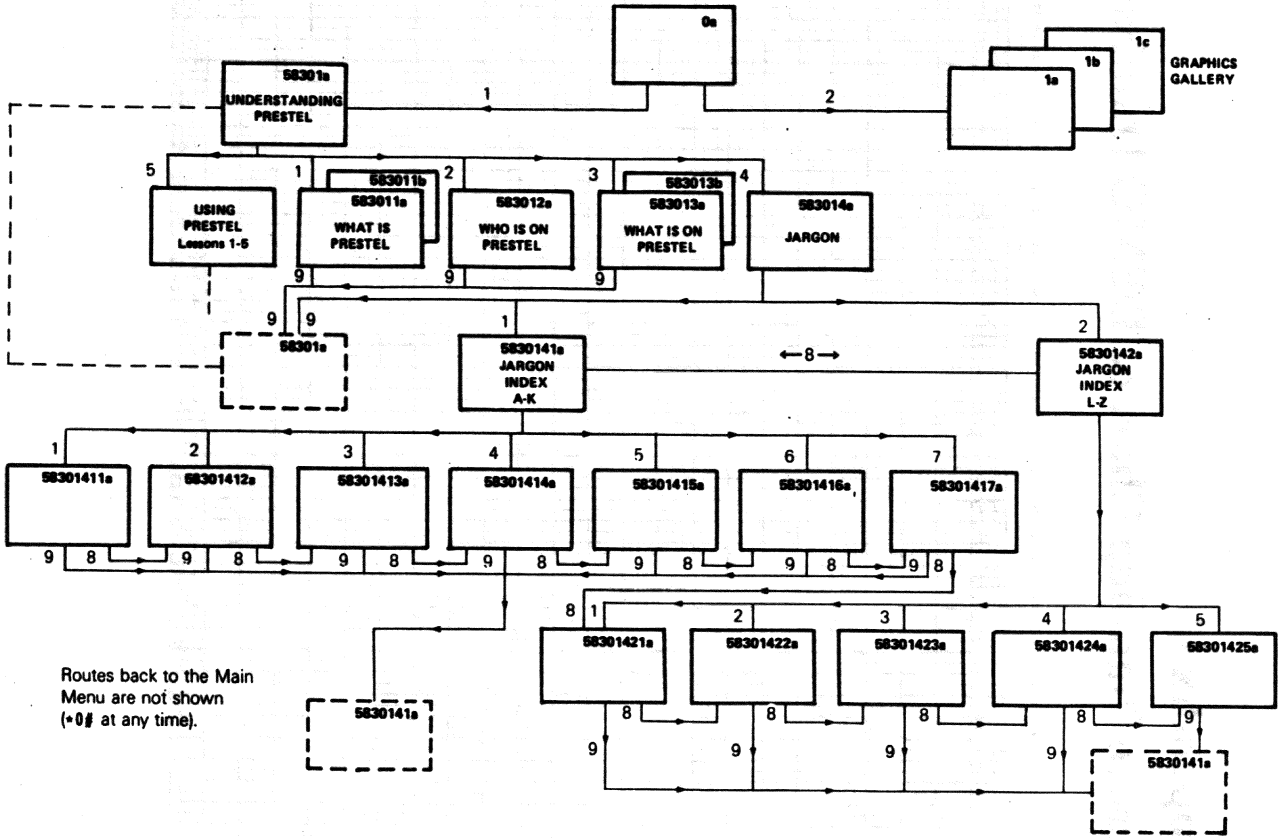
The full videotex record specification is now to be regarded as the standard, as set out in the document 'Draft File Interchange Format'. This is available direct from:

Council for Educational Technology
3 Devonshire Street
London WIN 2BA

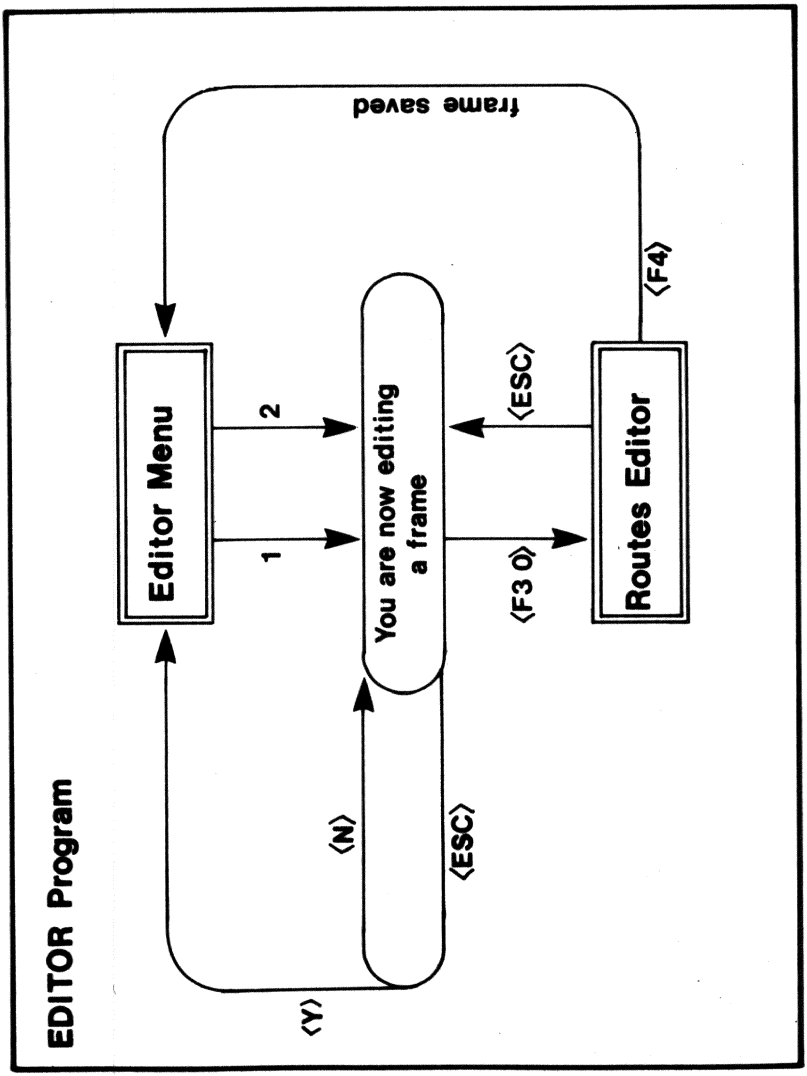
# Appendix H
# Screen Planning Chart & DEMO Database



## DATABASE 'DEMO'



# Appendix I
# Editing a Frame – A Map



# Appendix J
# Using A Printer

Two types of printer are supported by Micro Viewdata: the Epson RX series and the Anadex dot matrix printers.

The type of printer to be used is defined in the start-up file. Initially it is A:EPSONRX. If you want to use an Anadex printer, use the utility to edit the start-up file (described later in this chapter) to change A:EPSONRX to A:ANADEX.

## Printing on a Standalone System

The 480Z must be initialized for your printer before you load Micro Viewdata. The best way to do this is to use the CONFIG utility supplied on the 480Z CP/M system disc to set the system disc you are using to the appropriate printer.Then, each time you load CP/M when you start working, the 480Z is automatically initialized for the printer.

## Printing on a Network Station

There are two ways of printing on a network station:

- as a spooled print file on the network printer.
- on a local printer. The printer must be connected locally to the station that requires printed output. The procedure for preparing the 480Z for local printing is:

1. Connect the printer to the 480Z using the I/O4 socket on the back of the 480Z if it is a serial printer, and the I/O socket if it is a parallel printer.

2. Press **N** to log on to the network

3. If your network normally supports silicon disc 480Z's, enter **NOSID <RETURN>**

4. Enter **LOCAL LST: <RETURN>**

5. Press **<CTRL/F>**. Ignore what is displayed on the screen

6. Type the letter **O**

7. Type the letter **L** when you see **cassette or lineprinter (C/L):** on the screen

8. If you have a parallel printer, type **3**. If you have a serial printer, type **4**, and then type in the baud rate (between 0 and 6) that your serial printer is set up for

9. Press **K** to return to the operating system

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