Gemini

Manual and User Guide

For the Amstrad PCW 8256 + PCW 8512

DATA Gem

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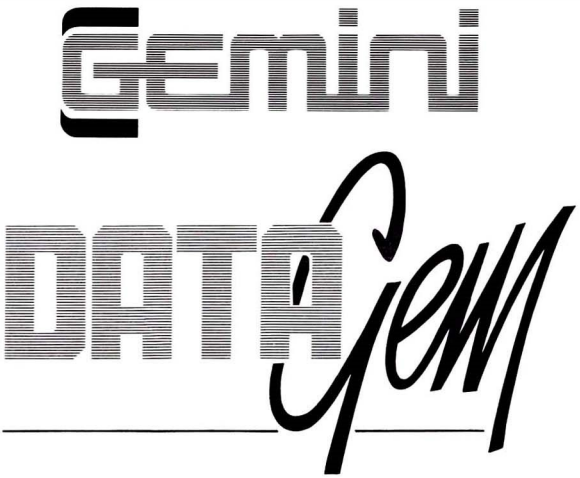


FOR THE AMSTRAD PCW 8256/8512

Written by Stuart Tranter.

To Sarah, who has been so patient.

This manual is for use on version 1.6 and above, as shown on title screen when loading.

Gemini House, Concorde Road, Exmouth, Devon EX8 4RS.

Introduction

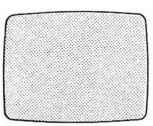
DataGem has been written specifically for the Amstrad PCW 8256/8512. It has been designed with special aims in mind:

* To be very powerful, flexible, and fast, so meeting the majority of database applications for businesses, and the serious home user.
* To make full use of the facilities offered by the PCW 8256/8512.
* To be very easy to use.

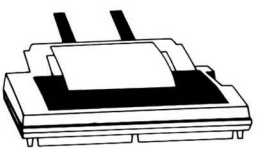
This manual assumes no prior knowledge of database applications, or use of the PCW 8256/8512 other than the very basics. The program itself is designed to cope with most errors you are likely to make, and will give prompts all the time.

Apart from being a very useful tool, we hope you enjoy using DataGem, and no doubt as time goes by you will think of many applications.

Wherever you see these 2 symbols it will indicate a screen layout or print layout.



SCREEN



PRINT OUT

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General System Overview

Most database systems work on the principle of giving each record a number, and then the user has several ways to find any given record; by entering the record number (if you know it), by defining certain criteria (which can take many minutes), or by listing everything until you find what you want. (Which is normally done out of desperation.)

Furthermore, it is quite likely that data is entered in random order, and so a SORT facility is offered. This is fine for small databases, but can take many hours for large files. Not only that, you may need two lists, say, one in date order, and another in alphabetical. For each list you would have to re-sort the entire file.

DataGem overcomes these problems. When you want to find a particular topic in a book you use the index, which will refer to the correct page. DataGem is like this, except that it can offer up to 8 different indexes in the same "book", depending on how you wish to find the information, or what order you require it. This is known as "keyed access".

As records are entered, each index is updated, and so the program knows where every record is, and can list it in up to 8 different orders without needing to sort anything. Using this method it is possible to find one record out of thousands in just a few seconds, in fact almost instantly.

There will, of course, be some occasions where you need to scan some of the details on every record in detail to find certain data, or to define specific criteria for a list. This is also possible with DataGem.

But there is much more. What is the point of data locked up in the computer? An obvious point overlooked by many programs is that ultimately you will need to use the data in a printed form, and that must be printed in a business-like way suitable for that particular application.

DataGem offers the facility to have set up for each file two "templates", which can tell the program exactly how to print the data, and include headings at the top of pages or with each record. If you define a template too big for the width of page, DataGem will even automatically reduce the print size to fit it on. The options available are considerable, but very easy to use and explained fully.

Another important feature included with DataGem is to be able to *completely* change a file layout, fields, sizes etc. once records have been added. This is done by defining the new layout, and then swapping all the data into it. Everything will automatically adjust to fit the new layout, all indexes will be updated, and any calculations amended in every record to fit the new data, or as amended in the new layout.

Other features include automatic calculations on entry, (useful for VAT rates, net totals etc.), use of function keys to enter frequently used data at the press of a key, two files in use at the same time (even with single drive computers) and much more.

Computer jargon has been avoided as much as possible, but it is explained where necessary.

Although likened to an "electronic filing cabinet", DataGem will be able to cope with many different applications:

Mailing lists
Personnel records
School Reports
Plant Records
Orders forms
Statistics
And many more . . .

Membership records
Record of customers/clients
Telephone directory
Job Cards
Catalogues
Stock Control

Creating a Start of Day Disc

The disc supplied by Gemini contains the following files and data:

Side A	DB.BAS	**Side B**	ORDERS
	DB1.BAS		REPORTS
	DB2.BAS		PUPILS
	DB3.BAS		MAIL
	DB4.BAS		EXTNS
	CLEAR.SUB		PRSNL
	PROFILE.SUB		
	INSTALL.SUB		

The programs on side A are used by DataGem, and on side B are several example files. (Three parts to each file).

In order to function correctly DataGem needs several other programs from the utility disc (side 2) supplied by Amstrad with your PCW 8256/8512. These are not supplied by Gemini due to copyright.

To create a start of day disc proceed as follows:

Computers with one drive fitted

1. Switch on the computer and insert the utility disc (side 2) supplied by Amstrad, or a copy of it. The CP/M operating system will load, and show the A> on the screen.

2. Type:

disckit

and press ENTER.

If DISCKIT? appears on the screen you have the wrong disc in the A drive.

3. The disckit utility is described in the Amstrad manual book 1 page 73. Use this to make a copy of the disc supplied by Gemini (both sides), and then EXIT back to the A>.

4. With the utility disc in drive A type the following command, including spaces, after the A>.

b: submit install

and then press ENTER.

5. Whenever the prompt "Put the disc for B: into the drive then press any key" appears make sure that the Amstrad utility disc is in the drive (side 2 nearest screen), and then press any key. This will already be in place when first asked.

When the prompt "ERASE *.* (Y/N)?" appears press Y.

Whenever the prompt "Put the disc for A: into the drive then press any key" appears make sure the copy of DataGem you have just made is in the drive (Side 1 or A nearest the screen), and then press any key.

6. The program will automatically copy the correct programs onto your start of day disc.

7. When M> appears on the screen the Start of Day disc is ready for use.

Computers with two drives fitted

1. Switch on the computer and insert the utility disc (side 2) supplied by Amstrad, or a copy of it in drive A. The CP/M operating system will load, and show A> on the screen.

2. Type:

diskit

and press ENTER.

If DISCKIT? appears on the screen you have the wrong disc in the A drive.

3. The diskit utility is described in the Amstrad manual book 1 page 73. Use this to make a copy of the disc supplied by Gemini. (both sides), and then EXIT back to the A>.

4. Move the Amstrad utility disc to drive B, with side 2 nearest the screen.

5. Insert the copy of DataGem you have just made into drive A, with side 1 or A nearest the screen.

6. Type the following command:

b: submit install

7. When the prompt "ERASE *.* (Y/N)?" appears press Y.

8. The program will automatically copy the correct programs onto your start of day disc.

9. When M> appears on the screen the Start of Day disc is ready for use.

TERMINOLOGY

File – This is a set of records. (e.g. a complete list of names and addresses). It is good practice to have one file on one side of a disc, or on a complete disc if the second drive is fitted. It is, however, possible to have up to 4 files that were originally created on the A drive transferred to the B drive (if fitted). Please see appendix C.

Record – This is a complete entry in a file. (e.g. A name, address and telephone number may be a record). The number of records in a file is restricted by the following:

The disc drive used. (The second drive has approx. five times the capacity of drive A).

Other programs or files already on the disc.

The size of each record.

The number and size of key fields.

Field – A record is divided up into 1 to 32 fields. (e.g. a name would be one field in a record). A field plus it's title must not exceed 88 characters.

Extension field – If 88 characters is not enough, then it is possible to "join on" more fields (without titles). Any searches will automatically continue onto the "extension field", so enabling you to effectively have a single field of up to 1498 characters.

Key Field – This is a field which has at least part of it used as an entry in an "Index" automatically maintained by the program on the disc. For example, in a file of names and addresses it would be normal for the surname to be configured as a key field. If the file was listed using the "name" key field it would be in alphabetical order. Up to 8 key fields are possible in each file. Although using more disc space, the program can usually find by key field a single entry out of a 1000 in less than 5 seconds, and display it on the screen, which makes DataGem one of the fastest database programs on the market.

Upper case – this term is familiar to typists, and means capital letters.

Integer – This is a whole number, without any decimal part.

Template – Throughout this manual a template refers to a layout, or general data relating to a particular file. All this information is stored on disc and tells the program the number and type of fields, where they should be placed on the screen, how to print the records, and so on. It is possible to use a template from an existing file (and amend it if necessary) to set up a new file. (Option 0)

Default Data – This is data "offered" by the program for input at a particular point. It can be deleted or amended if necessary, but in many cases it will be the actual input required, so just press ENTER.

OPERATING NOTES

Input Routines

When the program asks for information from you, there are two ways in which the information may be entered:

1. When you are prompted for an input such as a filename, which requires more than one key press, then it will be necessary to enter your response followed by ENTER or RETURN. Whenever ENTER is mentioned in this manual it is also possible to use RETURN. The only difference is that ENTER auto-repeats when held down which is useful in some cases. A cursor (small white square) will be displayed on the screen at the appropriate place. This is in almost every case near the bottom of the screen, except when entering records. It is also common for a default, or previously entered data to be displayed ready for amendment if necessary, with the cursor

positioned on the first character.

In order to reduce the possibility of errors it has been designed so that only legal keys can be used (in most cases). The variations are:

File names. Only 8 characters will be accepted, and spaces or illegal keys will cause a "bleep". Letters will be shown in upper case. Do not start a file name with a number.

Field names. 32 characters max., upper case only. Any spaces to the right of the name will be deleted. (Use dots or other characters to fill space if necessary for layout as in examples given.)

Numeric. Only numbers, decimal point and minus are legal. Maximum is as required by the input, or 9,999,999., and 8 decimal places subject to overall length of 9 characters including decimal point. The maximum number of significant digits is 8. If longer numbers are required in a field then use a character field (explained under main menu option 0).

Money. This is entered as for numeric, but with commas automatically placed as necessary when ENTER is pressed. The maximum number of significant digits is 8. This means that for sums of one million pound or more, the pence will be rounded to the nearest 10p.

Character. This is the most common, and allows most keys to be used. The characters under ALT and EXTRA are not available, due to the restrictions of the printer.

Date. This must be in the format DD/MM/YY. It is checked by the program (29/02/85 illegal, for example), and then stored in memory as an integer. This means that searches between dates are possible, or to have chronological lists produced. If you require a time span beyond this century, and also need to be able to list in date order, then set up a numeric key field with the date entered in reverse; For the 20th Jan 2001, enter 20010120. The program will treat this just like an integer.

Any illegal entries will cause the cursor to return to the start; with ENTER and EXIT disabled.

Editing of the line with the cursor is as follows:

DEL– Delete character under cursor

–DEL Delete character to left of cursor.

CANcel will delete complete line.

CUT will restore original data, if available.

LEFT ARROW will move cursor left.

RIGHT ARROW will move cursor right.

UP ARROW will move cursor to previous entry. (e.g. the previous field when editing a record), but only if allowed by the program at that point and subject to data entered being legal.

2. If the response required is a single letter, e.g. "Confirm to Delete? (Y/N)", then a cursor will not appear, and it is not necessary to press ENTER after pressing the correct key. Only valid keys will be accepted.

Escape

EXIT will be used in some cases, as described later. Its precise use varies according to the circumstances, but it will often return to main menu, or finish work in progress.

Errors

These are dealt with in various ways. In obvious cases, such as entering an illegal date or number out of range, the entry will be ignored, and the cursor wait for a different input. Refer to the part of manual as appropriate.

When an error is due to misoperation a message will be displayed. For example, if you wish to transfer data between files, and have only loaded one file this will be given as an error message.

In more drastic cases, (it is not possible to foresee every possible thing you might do wrong!), an error trapping routine will prevent the program crashing, and attempt to make sure no data can be lost. This will be given in the form of a 3-part reference number, and an audible warning given. The first two parts of the number can be used by Gemini to help solve problems if necessary, but you may find the 3rd part (a number in the range 1 to 200) helps explain the fault by referring to book 2 of the Amstrad manual, page 353. After pressing any key you will be returned to the main menu.

See below for DISC MISSING errors, and incorrect use of discs in B drive (if fitted).

IMPORTANT! Changing discs

The program has been designed so that two files on different discs (or opposite sides of the disc in drive A) may be used at the same time, such as when transferring data. Although there are considerable advantages in having two drives fitted, this is not essential. However, this means that from time to time a certain amount of disc changing will be necessary if two files on different discs are in use. The CP/M operating system will act as if you had two drives fitted, and will consider the disc drive to be A drive or B drive as appropriate, and prompt to change discs at the right time.

Changing discs can ONLY be done in the following circumstances:

1. (Single drive computers only). When specifically prompted by the program. You will see a message as follows:

Put the disc for B: into the drive then press any key

(The colon means "drive")

Remove the existing disc, and replace with the disc requested. BE VERY CAREFUL NOT TO GET THEM MIXED UP, OR INSERTED THE WRONG WAY. This may result in corruption to data, and at the very least will confuse matters considerably. It is suggested that a small pencil mark on the label showing which side of which disc is A drive and which is B drive will make things easier. Do not confuse side A with drive A. It is possible for side A of a disc to be considered by the program to be Drive B, and the other way round. If all this seems a little confusing, don't worry. It will all become

clearer as you proceed.

2. When the program is not logged into any file at all. This will be when the Main Menu is displayed, and both FILE NAMES near the bottom of the screen are clear. Inserting a disc and pressing the down arrow will give a directory listing for that disc, and an option to delete files. See option 6.

3. When using a "template" (existing file layout as described under option 0) for a new file. This means it will be necessary to temporarily remove the disc on which you are creating a new file, and then put in the disc with the existing template you wish to copy. Once this is done be sure to replace the original immediately.

If an attempt is made to access a file with no disc inserted the following error will be displayed:

drive not ready – Retry, Ignore, or Cancel?

This message is supplied by the Amstrad Operating system, and in the case of DATAGEM there is only ONE possible course of action: Insert a disc (preferably the correct one!) and then press R. If this message occurs when a disc is inserted ensure it is correctly in place.

In fact, if you at *any* time get a prompt ending with "Retry Ignore or Cancel" you MUST correct the fault and press R.

UNDER NO CIRCUMSTANCES PRESS I OR C. This will result in being returned to the CP/M operating system, with possibly data being lost. Should this happen type "basic db" and press ENTER. See appendix D and G.

Users with two Disc Drives

The use of a second disc drive will greatly enhance the use of DataGem, but there are a few points to remember:

1) Items 2 and 3 above (changing discs) still apply to two drive systems, as well as the warning about discs missing.

2) Although the handbook supplied with the second disc drive correctly states it is possible to READ data from a disc created in drive A, this is not recommended with DataGem, because it is necessary for the program to update the disc after use. *Always keep discs for use in drive B separate from discs to be used in drive A. A simple colour coding system should help avoid confusion.*

3) If you need to swap data between two files both held in drive A discs (i.e. Merge Files), then use the PIP utility to move the SOURCE file onto a spare disc in drive B, and then erase it, after merging files. (See appendix C).

4) It is obviously not possible to merge two files that are too large to both fit on a disc in drive B, but there is a way round the problem. (see option 7).

5) Be careful to insert the discs round the right way, that is with the A side, or side 1 nearest the screen.

6) If you are only using the B drive, then leave the start of day disc in drive A. This will ensure the directory facility will work correctly, i.e. it must have a disc in the drive, or an error will be given.

Files Information

At the bottom of the screen there are two lines with file information. One of them is shown in reverse video. (This will be the top one when first starting). This is the file to which all the menu options apply. If there is no file, then a prompt "Enter file name, or EXIT", will be displayed. (See Getting Started). Pressing EXIT will swap files, and the reverse video will change accordingly.

A summary of the information on each file is given as follows:

File name.
Drive on which the file is located.
RU (Records Used).
MR (Maximum records possible, up to 32,000).
The number of fields configured. (Between 1 and 32).
The number of Key fields. (Between 1 and 8).

Data files and security

It is strongly suggested that you keep at least one backup copy of the data file currently being used. This can be done using DISCKIT, which will be on drive M, (Appendix B).

GETTING STARTED

It is necessary to make a "Start of Day" disc, as described earlier. When this has been done, switch on (or reset by pressing EXTRA, SHIFT and EXIT if already on) and then insert the disc in drive A. The computer will then proceed to load all necessary data onto drive M, and run DataGem. If it does not, then check you have created the start of day disc correctly.

After displaying the copyright screen for a few seconds, the main menu will be shown.

Remove the start of day disc, and insert a blank formatted disc. The start of day disc will not be needed further, unless some of the example templates are needed from side B.

The menu options shown do not apply until a file has been loaded, so enter a file name as prompted at the bottom of the screen. This must be no more than 8 characters, must not commence with a number, and must not use spaces or symbols. It is not possible to have two files in memory with the same file name, and so it is suggested that you do not duplicate file names at all.

It is possible to see what is on a disc by pressing the down arrow when prompted for file name, or to return to CP/M by pressing the up arrow. (Appendix G)

After entering file name, you will then be prompted for the disc drive to be used for this file. Press A, B or M as appropriate. **PCW 8256 users please note: The space available on drive M is not enough to create a file unless some of the utilities are erased.** (Do not erase any files commencing "DB", or BASIC). Furthermore, any data will be lost unless it is transferred to drive A or B before switching off. It is suggested that any experimental files are created on drive A or B, and then erased using option 6. (You could use the B side of the DataGem disc.)

The program will check to see if the file exists, and if it does will load it

and wait for a selection from the main menu. If no file is found, you will be asked if it is a new file. (Press Y or N).

Pressing N will give the option of entering a different drive, otherwise option 0 will be automatically selected in order to set up the new file.

When using drive B on single drive computers, it is possible to swap data between files on different discs, or to have two files open at the same time on different discs, (or the opposite sides of the same disc). In order to achieve this the operating system acts as if there were two drives, and does this by asking for the right disc to be inserted at the right time. If you wish to make use of this facility you MUST make one of the files drive A, and the other drive B when loading. In this way the program will be able to prompt you to have the correct disc in at the correct time, as mentioned under "changing discs".

There are a few important points to remember when using DataGem:

1) ALWAYS use option 9 before switching off. This is essential to keep the disc updated.

2) ONLY change discs when prompted. (See "Changing Discs")

3) DO NOT swap discs between drive A and drive B on 2 drive systems. (i.e. single density and double density). The only exception is when using PIP (appendix C) to copy files, and then the SOURCE disc must go in B drive.

4) Do not use the SHIFT LOCK, unless needed while actually entering or amending records, otherwise the numbers 0 to 9 will not be available.

5) Only put one file on one side of a disc, or one file to a double density disc in the 2nd drive if fitted. It is quite acceptable, however, to PIP up to four files created on drive A onto a double density disc in drive B. See appendix C.

6) If you have valuable data on a disc, regularly make a back-up using the DISCKIT program. (Appendix B)

If you do break any of these rules it is sometimes possible to retrieve data by setting up a new file, and then swapping data from the old file into it. (Appendix D)

Creating your first file - tutorial

Hopefully you will now have created your start of day disc, and have some idea about the main facilities available. The purpose of this chapter is to work through step by step creating a new file, which should help demonstrate the concept behind DataGem's design. We will create a simple file to store a name, address, telephone number, weekly income and annual income. The last two fields are included as a simple way of showing how automatic calculations may be performed.

Although you may be tempted to start the manual at this point, you will probably save time in the long run by at least reading "Operating notes" and "Changing Discs" first!

It is assumed you have the main menu on the screen (see "Getting Started"), with the prompt "Enter file name, or EXIT" at the bottom.

We will use side B of the disc supplied by Gemini (or better still a copy of it), for creating our experimental NAMES file. It is normally suggested that only one file is placed on one side of a disc, because the maximum number of records available is calculated assuming the file has all the space available to itself. Several files can happily share the same space, but eventually an error will occur when the disc is full, which in some circumstances could corrupt data. With small files just for trying out the system this is not likely to happen, so we can safely use the "Example files" disc. (Side B of DataGem).

Make sure the write protect tab on side B of the DataGem disc is closed. This will ensure we can create a file on it. Insert the DataGem disc with side B nearest the screen in drive A. This is the top drive on computers with two drives fitted.

Type in the word NAMES and press ENTER. (Whenever ENTER is mentioned it is also possible to use RETURN).

The next prompt will be "Enter Drive (A/B/M) or EXIT". We want to create this file on drive A, so press A.

The program will look to see if this file already exists on the A drive. It does not, and so the prompt "Is this is new file?" will appear. Press Y.

There will now be a few seconds delay, and the screen will clear, with the heading "SETUP/AMEND NAMES" at the top, and the prompt "Load existing file Template? (Y/N)" at the bottom. We do not wish to copy a layout from another file, so press N.

Press any key to continue when prompted. There should now be a prompt to enter a name for the first field: "Field name 1". Type NAME and then press ENTER. You will notice that it will appear in upper case, even though the SHIFT LOCK light is not on. This is because DataGem requires field names to be upper case.

If you make a mistake when creating this file, see "Correcting Errors" below.

The next prompt is to enter the type of field. These are explained fully under "Main Menu Option 0", sub-section (iv), but in this case it is necessary to press C, and then ENTER for a character field. This means that almost any type of character may be used from the keyboard when entering data into this field.

The next prompt is to enter the maximum number of characters that may be used for the name. We will enter 15 in this case.

"Will this be a key Field?" is the next prompt. Every file must have at least one key field, which is used by the program to sort the data into the correct order as each record is entered. We will need to list names in alphabetic order, so enter Y to this prompt. You will notice that a "default" entry of "N" is shown, but this will be over-ridden when "Y" is pressed.

It is possible to have up to 8 key fields for one file, which means DataGem will automatically keep the same file in 8 different "orders". The advantage of this is that the same file can be listed, say, alphabetically, in date order, or numerically on several different fields without any need to perform a time-consuming sort.

But let's get back to our simple example. Having said we want NAME to be a key field we now need to say how many characters of the name will be used to prepare the index. Using less than the full length of the field will save disc space, but for our example this will not be a problem so enter 15, which is the full length of the name and will ensure that even the longest entries will be in the correct alphabetic order.

Having now told DataGem what kind of field this will be, we can now indicate where it should be on the screen. You will see the prompt "Use arrow keys to position start of field, and then press ENTER". Try pressing the four arrow keys to the right of the keyboard, and you will see the cursor can be positioned anywhere on the screen. The TAB and ROW indicator at the bottom left of the screen gives the co-ordinates, which is useful if the grid in appendix E is used to design a layout. Pressing ← or → moves tab numbers, and ↑ or ↓ moves ROW number as well as moving the cursor.

In this case position the cursor at TAB 1 ROW 1, (which is where it started) and press ENTER. The NAME field will be positioned on the screen, with asterisks showing the maximum number of characters.

The first field has now been created. This may have seemed a long time, but once you have entered a few it will only take a short time to create a complete file.

Carry on with the other fields as follows,but notice the dots after fields 2, 3, and 4. These are used to make all three titles the same length, which will improve the screen appearance. Notice also the prompts for the numeric fields are slightly different. This is because the program needs to know how many decimal places accuracy we require.

```
Field name 2                              : ADDRESS...
Field type                                : C
Maximum number of characters              : 25
Will this be a key field?                 : N
Use arrow keys to position start of field : TAB 1  ROW 3

Field name 3                              : TOWN.....
Field type                                : C
Maximum number of characters              : 25
Will this be a key field?                 : N
Use arrow keys to position start of field : TAB 1  ROW 4

Field name 4                              : COUNTY....
Field type                                : C
Maximum number of characters              : 25
Will this be a key field?                 : N
Use arrow keys to position start of field : TAB 1  ROW 5

Field name 5                              : TELEPHONE
Field type                                : C
Maximum number of characters              : 15
Will this be a key field?                 : N
Use arrow keys to position start of field : TAB 1  ROW 7

Field name 6                              : WEEKLY INCOME
Field type                                : N
```

```
Maximum number of characters          : 7
Enter number decimal places accuracy  : 2
Will this be a key field              : N
Use arrow keys to position start of field : TAB 38 ROW 7

Field name 7                          : ANNUAL INCOME
Field type                            : N
Maximum number of characters          : 9
Enter number of decimal places accuracy : 2
Will this be a key field?             : N
Use arrow keys to position start of field : TAB 61 ROW 7
```

If Date or Money fields had been used there would be no prompts asking for the number of characters, because this is standard. We have used numeric instead of money because we want to perform calculations.

When prompted for field name 8 press EXIT. You will be asked if you want to cancel the layout with the prompt "Cancel Layout". Press N, otherwise all your hard work will be lost!

The next prompt will be "Are more file changes required?". Assuming no mistakes have been made, press N.

You will now be prompted to "Enter max records needed for this file, to nearest 10". A default value of 32000 is given, which is the maximum.

If you pressed ENTER without amending this amount, DataGem would keep adding dummy records until either it reached 32000 (which is very unlikely unless you are using a hard disc system), or until the disc was full. It would then ensure that you did not exceed this amount when entering records.

In the case of our simple example 20 records will be more than enough, so press CAN to delete the 32000, and then enter "20".

Having done this, DataGem will add records up to 30 (this allows a safety margin) to ensure there is space on the disc, and give you the following message: "NAMES created on drive A. Max Records = 20, assuming no other files used on same side of disc. Press any key to continue."

The reason for the warning about other files is that once the dummy records have been created to check the disc, they are then deleted to ensure the fastest possible disc access. If you subsequently created another file on the same side of the disc DataGem would again assume it has all that disc for the new file, which would not be the case. For complete safety, and for easy "housekeeping" it is suggested you use one side of a disc for one file.

However, providing only small files are used it is sometimes possible to create several files on one disc. Also, users with two drives may like to refer to appendix C for moving up to 4 files created on separate drive A discs onto one disc in drive B. Each of the 4 files can be used to capacity due to the much larger size of drive B discs.

Enough of this digression. If you press any key the main menu will be displayed after a short pause.

CORRECTING ERRORS: If you make a mistake when designing the layout, press EXIT when asked for the next field name, press N when asked "Cancel layout", and then press Y when asked if more file changes are required. You will then find that pressing ENTER will give all the values you have previously entered one at a time. Change whatever is wrong, and then continue.

Printer template example - tutorial

We have created our NAMES file, and could in fact start entering data, but before doing that we will configure the printer. This tells the program how the records will be presented on the printed page, and up to two completely different layouts can be used for one file.

We will use template 1 to produce address labels, and template 2 to produce a list of records.

From the Main Menu select option 3. After a short pause you will be asked which template is to be amended. Press 1.

The screen will show several prompts. Enter the values as indicated below:

Start Page (0 to Cancel)	0
LH Margin	5
Tabulate (Y/N)	N
No. of heading lines	0
Gap between records	3
Lines per page (10-100)	66
Print data in italics? (Y/N)	N

Each of these prompts is explained more fully under option 3, further on in the manual. The up arrow can be used to go back to previous entry if necessary.

The next 6 lines can be used freely to enter information that can be printed either at the top of each record, top of each page, or at the top of each list of records printed.

We will not use these at the moment. Keep pressing ENTER to get the cursor past "Line 6" on the screen. You will now be asked "Print Field Summary?". Press Y, check you have paper in the printer, and then any key. A list of field numbers, names, length of titles and maximum length of field data will be printed. This is used to help you design the printed page.

Before proceeding it will be helpful to understand what we want to achieve. We want to print an address label, laid out as shown below:

Brown G.F.
27, High Street,
Rochester,
Kent.

In other words, we want field 1 on line 1, field 2 on line 2, field 3 on line 3 and field 4 on line 4.

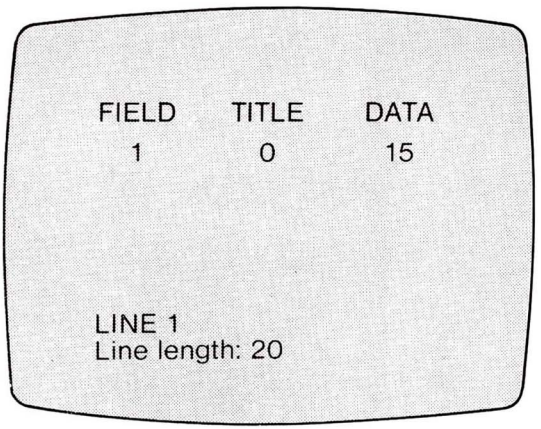
On the screen at the moment you should see "FIELD TITLE DATA" near the top of the scren, and "LINE 1" at the bottom left, with the

cursor positioned under the word "FIELD". The program is waiting for the information to tell it what will be printed on line 1, which in our case is field 1. Don't forget the field numbers and length of fields is shown on the printout just obtained.

Press "1" and then ENTER. The cursor will move to the "TITLE" column.

Press ENTER, (which will insert a zero) and the cursor will move to the "DATA" column.

Press "15" and ENTER, and the cursor will move to the next row, with the following information on the screen:



The line length is the margin, which we have already set to 5, plus the sum of all titles and data to be printed on this line. This must not exceed 142.

We have told the program we want the first 15 characters (which is all of them) of the "NAME" field (field number 1) printed on the first line of the page, but without the title "NAME". We could continue and print more fields on this line, but we will press ENTER without putting in a number. This will clear the screen, and move onto "LINE 2", as shown at the bottom left of the screen.

For "LINE 2" enter 2, 0 and 25 in the three columns, and when the cursor moves onto the next line press "ENTER" again. The screen will clean and move onto "LINE 3".

For "LINE 3" enter 3, 0, and 25 in the three columns, and press ENTER again when the cursor moves onto the next line.

For "LINE 4" enter 4, 0, and 25 in the three columns, and press ENTER again when the cursor moves onto the next line.

When "LINE 5" is shown at the bottom of the screen press EXIT, and the prompt "Any more changes?" will appear. If you have made a mistake then press Y and you will be able to amend any previous entries. Pressing EXIT tells the program that the current line (LINE 5 in our case) is to be deleted, and that the previous line is the last one to be printed.

Press N to the prompt "Any more changes?", and the main menu will be shown.

So far we have configured a page layout for template 1, but while the procedure is (hopefully) fresh in your mind try configuring template 2 using the following data:

Select Main Menu option 3, and then press 2 for template 2.

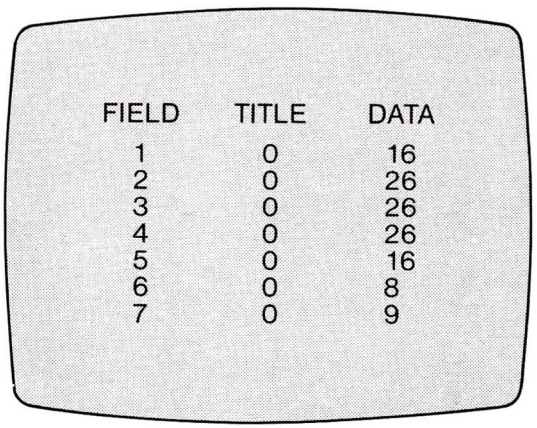
Start Page (0 to Cancel)	1
LH Margin	0
Tabulate (Y/N)	Y
No. of heading lines	3
Gap between records	0
Lines per page	66
Print data in italics? (Y/N)	N

Line 1: Gemini Marketing Ltd.
Line 2: *** Listing Example ***
Line 3:
Line 4:
Line 5:
Line 6:

The information after "Line 1" and "Line 2" above will be the heading information to be printed at the top of the page when listing.

Move cursor to bottom of screen, and press N when asked if you want a field summary, because you already have one.

Enter the following for "LINE 1":



FIELD	TITLE	DATA
1	0	16
2	0	26
3	0	26
4	0	26
5	0	16
6	0	8
7	0	9

After entering this data, press ENTER when the cursor moves back to the "FIELD" column, and when "LINE 2" appears at the bottom of the screen press EXIT. Assuming you have not made any mistakes, press N to the prompt "Any more changes?", and the Main Menu will be screened.

Can you see what will happen when template 2 is used for printing? All the information for a record will be printed across one line. DataGem will automatically reduce the print size to fit it on. You will notice that 1 has been added to the number of characters in each field. This is to ensure a space between columns.

Calculations - tutorial

You will recall we put in two numeric fields: "WEEKLY INCOME" and "ANNUAL INCOME". As you might expect, the annual income will always be 52 times greater than the weekly, so we can get DataGem to enter this amount for us whenever a new entry is made, or a record amended.

Select option 5 from the Main Menu, and you will see the two numeric fields listed. Also shown is the length of the field (LEN) including decimal point, and the number of decimal places accuracy (DP). The number to the left of the field title is the field number, which is 6 and 7 in our case.

At the bottom of the screen is the prompt:

WEEKLY INCOME: Amend, Delete, or Next? (A/D/N) or EXIT

Press N for Next, and the prompt will read:

ANNUAL INCOME: Amend, Delete, or Next? (A/D/N) or EXIT

Press A to Amend. We want this field to be 52 times field 6, which is the weekly income field.

The next prompt is:

Number or Field? (N/F)

Press F, and the cursor will appear on the ANNUAL INCOME line, waiting for you to enter the field number. This is prompted at the bottom of the screen.

Press 6, and then ENTER.

We now need to say what we want to do with field 6. In our case we want to multiply it by 52, so press * (use the SHIFT and 8) which is the symbol for multiply. This will be shown on the screen after the F6.

We now have the "Number or Field" prompt again. This time press N for a number. Again, the cursor will appear on the ANNUAL INCOME line waiting for a numeric input.

Press 52, and ENTER.

We have completed our simple calculation, so press = (equals).

On the ANNUAL INCOME line you should have:

F6*N 52=

In other words ANNUAL INCOME (field 7) is 52 times whatever is entered in WEEKLY INCOME (field 6).

Press N when asked if any more amendments are needed, and the Main Menu will be screened.

Entering Records - tutorial

This is simple. Just press 1 from the Main, and enter data as required. The line at the bottom of the screen gives information about the field currently with the cursor on, and is explained more fully later on. (Option 1)

You can use the arrow keys to move the cursor along text, and to previous fields. (Up arrow). Amendments to the line is carried out as explained under "Operating Notes" on page 5.

Try entering the following data:

NAME Smith J.R.

ADDRESS	444 Kings Road	
TOWN	Rochester	
COUNTY	Kent	
TELEPHONE	456789	WEEKLY INCOME 132.12 ANNUAL INCOME 6870.24

NAME Barnes H.

ADDRESS	23 Chapel Road,	
TOWN	Gillingham,	
COUNTY	Kent.	
TELEPHONE	656565	WEEKLY INCOME 203.11 ANNUAL INCOME 10561.72

NAME Currie J.

ADDRESS	367 Albany Road,	
TOWN	Chatham,	
COUNTY	Kent.	
TELEPHONE	56789	WEEKLY INCOME 189.55 ANNUAL INCOME 9856.60

If you set up the calculation field as explained above, you will notice the last field is entered for you.

When the cursor is positioned ready to enter the 4th record, press EXIT for return to Main Menu.

Listing Records to Screen or Printer - tutorial

Select option 2 from the Main Menu, and the layout of the NAMES file will be shown on the screen, with the prompt "Press any key to continue or EXIT" at the bottom.

In our case we only have one key field (NAME), but if there were more than one we would be prompted at this stage to enter which key field we wanted to use for the search.

Press any key, and the "Start from" prompt appears. Press ENTER.

When prompted for "To:" press ENTER again. This means we wish to see all records in NAME order. (Alphabetical).

The next prompt is "Conditional Search Field". Press the DOWN arrow. This means we do not wish to define any other complex search criteria, but just want a straight listing to the screen.

The first record will be listed, which should be the name BARNES, even though it was not the first one entered. Press the DOWN arrow again.

We should now see CURRIE. Press the down arrow again, to get SMITH.

Now press the UP arrow, and CURRIE will be listed again. It is possible to browse through all records like this, but don't bother for now.

Now press A to amend CURRIE. (The amend always applies to last record listed). You will see the cursor appear on the first field. Keep pressing ENTER to get the cursor onto the WEEKLY INCOME field.

Change the 189.55 entry to 289.55, and then press ENTER. You will see the ANNUAL INCOME also amended accordingly to 15056.60.

Now press EXIT, to get the prompt "Repeat search criteria?". Press Y to this prompt. The next prompt is "Field Summary Required?". Press Y.

"Print or Screen Records?" – press P

"Which Template? (1/2)" – press 2

"Single or Continuous" – press C if you are using continuous paper, or S for single sheets.

"Enter Number of copies per record" – Just press ENTER to get the default value of 1 shown.

"Print Page Numbers?" – press Y

"Print heading every List/Page/Record"? (L/P/R) – Press L

"Prepare printer. Press Any Key to Continue"

Check you have paper ready in the printer, and press any key.

All three records will be listed as shown below:

Page 1

Gemini Marketing Ltd.,

*** Listing Example ***

Barnes H,	23 Chapel Road,	Gillingham,	Kent,	656565	203,11	10561,72
Currie J,	367 Albany Road,	Chatham,	Kent,	56789	289,55	15056,60
Smith J,R,	444 Kings Road	Rochester	Kent	456789	132,12	6870,24

Pressing any key after this will cause the program to give a field summary, as requested above. You will see this gives the total and averages for weekly wage and annual income for the records listed.

Again, press Y to the "Repeat Search Criteria?" prompt.

"Field Summary Reqd.?" – press N

"Print or Screen Records?" – press P

"Which Template?" – press 1

"Single or continuous Sheets" – press C or S as appropriate.

"Enter number of copies" – press ENTER

"Prepare Printer. Press any Key to continue"

After pressing any key you should see all three records listed as below:

Barnes H,
23 Chapel Road,
Gillingham,
Kent,

Currie J,
367 Albany Road,
Chatham,
Kent,

Smith J,R,
444 Kings Road
Rochester
Kent

Normally, these would be printed onto sticky labels, with the spacing adjusted accordinaly. The "Mailing List" example later in the manual gives a more sophisticated version.

This time when asked "Repeat search criteria" press N, and then EXIT for Main Menu, unless you wish to experiment further with reference to the instructions under "Option 2".

Merging Files - tutorial

Merging data from one file to another is one of those things that is rather more difficult to explain than actually do, but if you work carefully through this tutorial hopefully you will soon see the idea behind this facility.

You should now have 3 records in the NAMES file if you have been following the tutorial up to now. We will now copy the names and addresses from this file into the MAIL file supplied with DataGem.

In order to do this we need both files in memory at the same time. You should at the moment have the Main Menu screened, with FILE NAME 1 at the bottom of the screen loaded with the NAMES file.

Press EXIT and the FILE NAME 2 prompt will be shown in reverse video, with the "Enter file name, or EXIT". Type MAIL and then press ENTER.

I assume you have side B of the DataGem disc in drive A, which is where you created the NAMES file. This side also has MAIL on it, so press A when prompted to "Enter Drive". After a few seconds the MAIL file will be loaded. This should have 3 records used, shown as RU at the bottom of the screen.

If you select option 2 you will see the layout of MAIL shown on the screen. We will copy data into the SURNAME, ADDRESS, TOWN and COUNTY fields from the NAMES file. EXIT back to Main Menu.

Select option 7 from the Main Menu. After a few seconds you will be prompted to enter the SOURCE file number. In our case we are

copying from NAMES to MAIL, which means NAMES is the source file, so press 1.

The screen will now show the layout of the NAMES file on screen. At the bottom of the screen is the first field of MAIL, which is called NUMBER OF COPIES TO PRINT. The prompt just above this, "Enter Source", is for you to tell the program which field in the NAMES file is to be copied into the first field of the MAIL file.

In our case we do not want to copy any data into this field, so just press the DOWN arrow. The destination will change to SURNAME. (If you press the UP arrow it will revert to the first field again – which means you can browse through all the destination fields).

However, in our case we want to move the data from the NAME field to the SURNAME field. Press N and then ENTER, which will give the prompt "NAME – please confirm." Press Y.

You will be given the following warning:

"WARNING – Reduced data length. Confirm to continue"

This is because the destination field is shorter than the source, which could result in the end of the field being "chopped off" during transfer of data. This does not really matter in our case, so press Y.

The next destination field is TITLE/INTLS. We don't have a similar field in the source file, so press the down arrow again.

The next destination field is ADDRESS. This time we do have a source, so press A, and then ENTER. You will be prompted to confirm that you want ADDRESS. Press Y.

The next destination field is AREA. We don't have one of these in the source, so press the down arrow again.

We do have a TOWN in the source, so press T, and ENTER, and then press Y to confirm we want TOWN. You will get the warning about reduced data length again. Press Y.

The last field we want to transfer is the COUNTY field, so press C for COUNTY, press ENTER, and Y to confirm. Again you will need to assure the program that it does not matter about reduced data length, so press Y when given this warning.

When the destination reads POSTCODE press EXIT. This means we have completed setting up which fields are to be transferred to which.

The only rule to remember when going through this procedure on your own files is that the source and destination fields must be of the same type, e.g. you cannot transfer data from a character field to a numeric.

The program will now be prompting you to enter a "Start from:" value. This will apply to the NAME field in the NAMES file. If this file had had more than one key field you would first have been asked to specify which key field to use.

We want to transfer all data, so just press ENTER. Similarly, just press ENTER when prompted for the "To:" value. If this had not been a character field it would have been essential to enter a value in the "To:" prompt. For example, if you had been a 3 digit numeric field and all data was to be transferred you would need to enter "999".

The next prompt is "Press any key to Continue or EXIT". This is your last chances to change your mind! Don't forget, with large files the program could be swapping a lot of data, so be sure you get it right. if you are dealing with very large valuable files, it may be wise to take a copy of the destination file with DISCKIT before commencing, in case you accidently swapped the wrong fields.

But we will be brave, and take a chance. Press any key, and in a few seconds the transfer of data will be complete, with progress being shown on screen. In our case the source and destination are both on the same disc, but normally users with only one disc drive will have them on separate discs. If this is the case, and you cannot temporarily copy them both onto one disc using the PIP utility (appendix C) then one of the files must be designated as "drive B" when loaded originally. This will mean a lot of disc swapping as the transfer takes place, but the program will prompt at the correct time.

Getting back to our example, press any key, and then EXIT back to Main Menu.

When the Main Menu is screened, you will see that MAIL should now have 6 records! Press EXIT so that the program is "logged into" the MAIL file, and then select option 2.

Select SURNAME as the key field, press ENTER for the "From" and "To" prompts, and then press the DOWN arrow when asked for "Conditional search field".

The first record screened should be BARNES. Keep pressing the down arrow, and you will see that the 3 records added have been slotted into the correct place. If there had been any calculations, these could also have been done during the merging process automatically.

Press N when prompted to "Repeat Search Criteria", and then EXIT back to Main Menu.

THE MAIN MENU

The menu consists of 10 options, each one relating to the file shown in reverse video at the bottom of the screen. After selecting some of the options the message "Please wait..." may appear. This means there will be a few seconds delay while the main program loads different code for the option selected.

Option 0. Design or Amend Database Layout

This is used to set up a new file, or make changes to an existing file. If records exist in a file it is ONLY possible to make changes to the screen layout, or change field titles. It will not be possible to alter field types, length, order, or number of fields. However, it is possible to completely change a layout by setting up a new file and then using option 7 to transfer data into it.

It is strongly recommended that you use a photocopy of the grid in appendix E to layout what you want the screen to look like, what field types are needed, and how long they should be. This will make entering the details much easier, rather than making it up as you go along.

If you are going to make amendments to a file that exists the program will update the disc automatically when selecting this option. This will enable it to re-load the old layout should you not wish to save the new layout.

i.) On entering this option, if it is a new file the option to load a template from another file will be given. (Press N and go to (ii) if not required.) Press Y and then enter the file name of the template to be copied. Insert the disc from which the template is to be copied if it is not already in drive A or B, and then press A, B or M as appropriate when prompted. The template will be loaded. You will now be given the option to amend this layout (template). If it does not require changes press N and go to (x).

ii) Press any key to continue, or press EXIT to return to the main menu. If a file has not been correctly created, it will be deleted from memory before returning to main menu.

From this point on it is necessary to press ENTER after single character inputs such as Y or N. This is so that default values can be given, and it allows you to hold down the small ENTER key in order to quickly pass by entries yo' do not wish to amend on an existing layout.

iii) Enter field name. This can be up to 32 characters long, but two fields with exactly the same name are not permitted.

a) If it is not the first field, and the preceding field was a character field (type C) then pressing ENTER without entering a name will cause the program to assume it is to be an extension of the previous field. (go to v).

b) If you are amending an existing layout the existing field name will be given as default for amendment.

c) Pressing EXIT will cause the program to assume the design is complete, or is to be aborted. You will be asked if you wish to cancel the layout so far. Pressing Y will revert the layout to how it was before amendments were made, or delete file if new. If N then go to (ix).

If you wish to use the auto-print facility (see option 2), then it will be necessary to set field 1 to a numeric (integer) field. The program can then use this to see how many copies of each record to print.

iv) Enter field type. These are as follows:

a) Character. This is the most common, and will be used for general purpose. If it is to be a key field it will be sorted in alphabetic order. Numbers, most symbols or letters may be used. If this is used as a numeric key field it will not sort correctly. (See (c), below).

b) Date. Data entered into fields of this type will be in the form DD/MM/YY, and will be checked to make sure it is valid. If it is a key field it will be sorted in date order. (6 characters are used on disc to store a date). (go to vi).

c) Numeric. This is for amounts up to 9,999,999 with up to 8 decimal places and no more than 9 characters including the decimal point. Large amounts will be corrected to 8 significant digits. If it is a key field it will be sorted numerically. When printed in tabulation mode decimal points will be aligned. Only numeric fields may be used for calculations.

d) Money. This is similar to numeric fields, except that **they may not be used for calculations.** Commas are automatically printed in the correct place when listing. If calculations are required on money then use a numeric field, and set it to 2 decimal points. (Go to vi).

v) Enter maximum number of characters that will be allowed for input to this field. The maximum is dependent on the length of the field title, and the type of field. The maximum will be indicated on the screen. Please note also the record length indicated at the bottom of the screen. This is the total of all fields so far (+2), and must not exceed 1500. When entering for a numeric field don't forget the decimal point takes one place.

If it is a character field only one character long it is possible to define "legal" entries. The prompt "Limited Entry?" will be given. Press Y, and then enter all characters that will be allowed. For example, if the field is for a Y/N input only you could enter YN or YNyn as the characters to be allowed. When the user enters data into this field the program will then only allow the characters entered here. It is a good idea to include "legal" entries in the field title, as a reminder to the user.

If numeric, you will be prompted for the number of decimal places accuracy required. (max shown). Any amounts entered into this field will be corrected to this automatically. Enter 0 if an integer (whole number) is required.

vi) Will this be a key field? (The maximum allowed is 8). See previous explanation of a key field. If you press Y, and it is a character field you will be asked to enter the number of characters to be indexed. The maximum is 31, or to the length of the field.

For example, if the field was called NAME and was 40 characters long, it would probably be quite sufficient to just place the first 15 or so in the index to list the records in the correct order. Do not use any more than necessary, as this will take up valuable disc space, and searches are even faster on shorter keyfields.

vii) Use the arrow keys to position the start of the field on screen. A cursor will be placed on the screen, indicating where the first letter of the field name will be. This must not be before any previous fields, and there must be sufficient space on the line. The arrows will move the cursor, and the box in the bottom left corner will give co-ordinates. (TAB and ROW). When you have put the cursor in the correct place press ENTER, and the field will be displayed. This can be changed later if necessary.

Asterisks are used to indicate the length of the field, with key characters in reverse video. The space between the field name and the field itself shows the type of field. (C,N,D, or M). When displayed on screen for entering or amending data the field name will be reverse video, and the other detail removed.

viii) If all the fields have not been allocated, then go to (iii). You can EXIT when prompted for field name if necessary.

ix) Are any more design changes required? Pressing Y will take you back to (iii).

x) If this is a new file, you will now be prompted to "Enter max records needed for this file, to nearest 10". A default value of 32000 is given, which is the maximum.

If you pressed ENTER without amending this amount, DataGem would keep adding dummy records until either it reached 32000 (which is very unlikely unless you are using a hard disc system), or until the disc was full. It would then ensure that you did not exceed this amount when entering records. The procedure for adding dummy records when used with files containing several key fields on drive B, which has a large capacity, can be time-consuming, but it does ensure beyond all doubt the maximum capacity of the file in advance.

An alternative to using the "default" value is to press CAN, and then enter an amount equal to the maximum records you will require.

Having done this, DataGem will add records up to the amount specified plus 10 (this allows a safety margin) to ensure there is space on the disc, and give you the following message: "(FILE) created on drive A. Max Records = (number) assuming no other files used on same side of disc. Press any key to continue."

The reason for the warning about other files is that once the dummy records have been created to check the disc, they are then deleted to ensure the fastest possible disc access. If you subsequently created another file on the same side of the disc DataGem would again assume it has all that disc for the new file, which would not be the case. For complete safety, and for easy "housekeeping" it is suggested you use one side of a disc for one file.

However, providing only small files are used it is sometimes possible to create several files on one disc. Also, users with two drives may like to refer to appendix C for moving up to 4 files created on separate drive A discs onto one disc in drive B. Each of the 4 files can be used to capacity due to the much larger size of drive B discs.

Option 1 – Enter New Records

Having set up, or just loaded a file it is now possible to enter new records. However, if this is a new file with some numeric fields you may wish to use option 5 in order to set up automatic entry of some data, and perform calculations.

Pressing "1" from the main menu will show the layout of the file on the screen with the cursor positioned ready for data input on field 1.

You will notice at the bottom of the screen a field summary. This will show the following information:

1. The number of records already in the file.
2. The number of the field currently being edited.
3. The type of field.
   (i) C = Character
   (ii) N = Numeric
   (iii) D = Date (DD/MM/YY)
   (iv) M = Money

   If it is a numeric field the number of decimal points accuracy will also be shown (0 = Integer)
4. The maximum number of characters allowed for that field.
5. If it is a key field then "KEY FIELD" will be shown.

You may simply start entering data, which can be edited as explained earlier. Pressing the ENTER key will move the cursor to the beginning

of the next field, and pressing the up arrow will move the cursor to the previous field. If any of the fields are the results of calculations the cursor will ignore these and move on to the next field. (See option 5).

In some cases it will not be possible to pass a field unless a valid entry has been made, i.e. Date, Numeric (if number too large), or where a specific response is required (Y/N).

When you press ENTER after the last field any calculation fields will automatically update, the entry will be stored permanently (the program will store several records in memory before updating the disc) and the cursor will be positioned ready for the next entry. If an automatically calculated field results in a division by zero then "*" will be placed in the field, and it will evaluate to zero. Similarly, if the result is larger than the space allocated "%" will be placed in the field and it also will evaluate to zero.

If there is sufficient space on the screen the next record will be displayed below the last one, and eventually scroll the screen. If there is only space for one record the data will be erased from the screen (but stored in memory), and the cursor re-positioned at field 1.

Pressing EXIT will return to the main menu, and the current record will NOT be entered in memory. For this reason it is important to move onto the next record before pressing EXIT unless you wish to abort the current record.

It is not possible to get back to a previous record unless option 2 is used from the main menu. If a mistake is noticed AFTER entering the record it is normally quicker to make a note of the record and correct it later with any other amendments rather than stop now. It is even quicker to glance at the record before entering it (i.e. leaving the last field) and see if it is correct!

Option 2 - Search/Amend/Delete/Print

If you will be using this option to print records, then it is essential that option 3 has been used to configure at least one of the printer templates.

On selecting this option you will be shown a layout of the file on screen. This is in order to remind you of field names, types, length, and which are the key fields.

In order to find records for screening or printing we need to look up in the "Index" where they are. Most database programs use record numbers, but this is not the best way. When you want to find specific information in a book you look in the index. This will tell you the page number, but once you have found the item you want the page number is no longer of interest. This is the same with DataGem, except it does not bother to tell you the page (record) number, but goes straight to the right place. This avoids time-consuming searches, and you will also have noticed this means it is not necessary to sort the records; they are always presented in the order you choose, i.e. by the relevant "Key Field".

If you search using this key field method without including other criteria, (which will probably be the majority of cases), then it should only take 3 or 4 seconds to find any record, however large the file.

So, the first prompt is to enter the key field you wish to use for the search. (This will not be done if there is only one key field). You can see which are the key fields by looking at the layout (reverse video asterisks). It is only necessary to press the first letter or two of the field name and then press enter. The program will look for key fields starting with that letter and ask for you to confirm the choice. Pressing N will cause it to look for another, and if no more are to be found the original prompt will return.

The prompt "Start from:" needs you to enter the place in the index from where to start searching. If the search is from the beginning then simply press ENTER, unless it is a date field in which case a date must be entered (e.g. 1/1/00). At the bottom of the screen is the field summary, exactly as when entering records in option 2.

The prompt "To:" now needs you to enter where the search is to end. If it is a character field pressing ENTER will cause the search to continue through all entries to the end. If it is not a character field an entry must be made. For numeric fields you may find it helpful to refer to the length of the field and number of decimal places maximum at the bottom of the screen. Don't forget the length of the field includes the decimal point (unless integer). Obviously the "To" entry must be equal to or greater than the "From".

If you are looking for a specific record then enter that name in the "From" *and* "To" prompts.

Having now defined the order in which records will be presented, and the starting and finishing points, you can now give more details if necessary about records you are looking for. The next prompt says "Conditional Search Field". You may enter any of the field names in the file (using just the first few characters as above), and specify a range of data required.
Alternatively pressing the down arrow at this point will cause the program to ignore conditional searches and simply list to screen. (See "Listing to screen")

Example:

You have a file of school reports, and you wish to see all reports (in order of surname) with a mark lower than 25% The surname will have to be chosen as the key field, and the marks are in a field called "MARK (%)". When prompted for "Conditional Search Field" enter "MA" and press enter. When asked to confirm "MARK (%)" press Y. The next prompt will ask where the range is to start from. Press ENTER because you wish to start from zero. You will then be asked to give the upper limit. Enter "24".

If the conditional field had been of a different type (C, M or D) the range would have been alphabetic or chronological as appropriate.

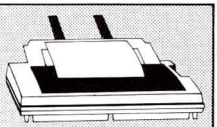
It is possible to initiate a search in this way on all fields, and the prompt "Conditional Search Field" will be returned each time until you press ENTER without specifying a field. (e.g. you could in the above example have also included students between a certain age range).

The next prompt is "Enter embedded phrase to search for". This is used to search for information by matching the input given throughout the length of the specified field. You may, for example, wish to look for

a specific word which is not at the start of a field. Enter the word, or phrase, and then the field the program is to search. If it is a character field and it is followed by an extension field, the extension field will automatically be searched as well. Upper and lower case will be ignored. i.e. If you search for "smith" then Smith will be found. If a search has already been made using this facility, the word or phrase previously searched for will be given as default. This will enable you to use it quickly to repeat the search on a different field.

You will now be asked if "Field summary reqd. (Y/N)". An example of a field summary is given below:

RECORD SUMMARY FOR ADDRESSES



Searched using key SURNAME ...

Search Criteria:
All records including 'OLD' within DETAILS .....

Field	*From*	*To*	*Total*	*Average*
SURNAME.....			0	0
TITLE & INITIALS.			0	0
ADDRESS			0	0
COUNTY			0	0
POSTCODE			0	0
DETAILS			0	0
COST	5.00	100.00	1725	8.98

Records in File : 2124
Records found : 192

It shows all the search criteria previously defined, the total and average for numeric and money fields, the records in the file and how many matched the search criteria. It will be printed after the listing to screen or printer is complete. If you intend to amend records it is suggested you do this first, and then repeat the listing before printing a summary.

Having pressed Y or N to the previous prompt you will be asked if you want the records printed or screened. Pressing S will cause the search to commence, (see "listing to screen", below), and pressing P will cause further prompts relating to the type of printed information required, as follows:

Listing to Printer

"Which Template? (1/2)". These are the templates set up with main menu option 3. Press 1 or 2 as appropriate. (Make sure the template you select has been configured, or nothing will be printed.)

"Enter no. of copies per record, (A = Auto)". Default value of 1 is given. This is the number of printed copies of each record found. (Up to 99). If the first field was configured as an integer, then it will be possible to use the "Auto" facility. If selected (press A), the program will look at each record and print the number of copies entered in the first field. This is particularly useful for mailing lists, where the number of address labels required varies with each individual.

If the paging was set in main menu option 3 (printer configuration) you will be asked "Print page numbers?". Pressing Y will cause the page number to be printed at the top of each page.

"Single Sheets or Continuous? S/C". In most cases with database applications continuous (tractor feed) paper will be used, but this gives the option to use single sheets as with the word processor. Press S or C.

If the heading is to be printed (as in main menu option 3 Printer Configuration) you will be asked to say if this will be before each List (i.e. printed only once), at the top of each page (if paging enabled) or at the top of each record. Press L P or R for List Page or Record.

"Prepare printer then press any key to continue." At this point you may find it useful to press PTR to set draft or high quality as needed. The PTR functions are explained in the Amstrad manual book 1 page 119. Press EXIT to return from PTR. Check the paper is in position etc., and then press any key to start printing.

Please see Appendix F for more details about the printer.

To pause the printer press PTR, and then EXIT to start again. To abort the listing press EXIT. Due to the printer buffer this will not work immediately, and so it will be necessary to reset the printer as well (See appendix F).

Listing to Screen

This will be presented as when entering records. Use the down arrow to see the next entry in the list, and the up arrow to see the previous entry. Any entry can be amended by simply pressing A. This will place the cursor on the first field ready for amendments. Existing data will be given as default, and this can be edited as explained earlier, or use arrows. When finished, press EXIT. Any calculation fields will automatically be updated if necessary.

Records may be deleted by pressing D. This relates to the last record listed. You will be asked to confirm. (Press Y or N).

Please note: If key fields are amended or deleted this will obviously mean the index on disc will need to be updated as well as the data itself. Although this will be done by the program, it may mean the listing will not be able to continue, and the "Repeat search criteria?" prompt will appear. If you wish to continue then press Y and then answer other prompts as explained above.

Holding down an arrow key will cause the listing to scroll more quickly, so enabling a fast browse.

Pressing EXIT will abort the listing.

After listing to screen or printer you will be given the option to repeat the listing using the same criteria already defined. This is useful for example when:

1. Listing to screen first before printing to check records.
2. Producing duplicate listings. (Although a photo copier if available will save wear on the printer.)

If you do not require a repeat search with the same criteria press N, and you will be given the opportunity to define new criteria, or EXIT to main menu.

Option 3 - Printer Configuration

This option must be used before any records can be printed, but once done the data will be stored on disc for future amendment.

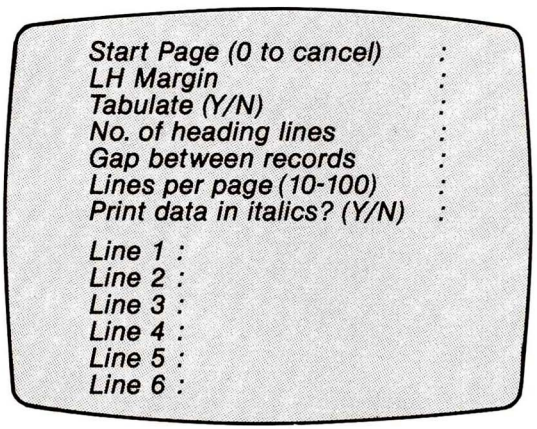
A printer template is simply a record of the way you require the data in your file to be listed. When you set up the file using option 0 this was laid out on the screen in a way that made it easy and logical for entering data, but this may bear no relation to the way you want to see it listed. Indeed, at the end of the day one of the main purposes of a database is to be able to produce data for a specific purpose, and this usually means a printed copy, whether it be a mailing list, an order form or school report. Configuring the printer tells the computer exactly how you want your data presented.

Although quite straightforward to set up, you will find it much easier if you sketch on a piece of paper how you want the data to appear, but after you have read through once to see what is possible. Although the program will point out most glaring errors you might make, do think carefully. For example, don't layout a template taking up 25 lines, and then say there are only 20 lines to a page!

DataGem offers the facility to have set up two templates for each file in memory (i.e. up to 4 in memory at a time). This feature means that two completely different layouts can be used for the same listing. Furthermore, unlike other programs DataGem was written specifically for the PCW 8256/8512, which means we know what printer you are using and can make good use of it's facilities.

After selecting option 3 from the main menu there will be a short pause before you will be prompted to enter which of the two templates for this file you wish to amend. Press 1 or 2.

The following data will be presented for entering or amendment:
(If this template has been used the previous values will be given as default.)



The up arrow can be used to amend previous line.

Enter data as follows:

The start page is used to say the number of the first page if listings are to be split into pages. If 0 is entered then paging will be disabled.

LH Margin is the size of the left hand margin required when printing.

Warning. When the layout on paper is defined the program checks to make sure it will fit across the page, and reduces print size if necessary. If you *subsequently* increase the size of the left hand margin without checking the layout this may force the printer to print onto the next line, so spoiling the layout.

Tabulate? If you press Y to this prompt then any fields on the same line will be tabulated according to the maximum length of the field, or as otherwise defined. Pressing N will cause the program to place fields on the same line with just one space between them, irrespective of the maximum field length. This is useful for applications such as mailing lists where you may require the postcode to follow straight after the county, whatever the number of characters in the county.

No. of heading lines. The lines numbered 1 to 6 near the bottom of the screen can be printed at the beginning of each listing, each page or each record as required. Each line is 80 characters long (fits right across the page), and can have any data you wish inserted in it. This option defines how many of those lines are to be printed, whether or not they have data in them. Heading lines are particularly useful for titles, and other information common to all records, or pages. See the examples towards the back of the manual.

Gap between records. This is simply the number of lines to be left between each record printed.

Lines per page. (Only applies if paging enabled, above). This is the number of lines to a sheet of paper. For the majority of listing paper this will be 66. The program will always leave a few lines at the bottom of the page, and will never split a record over two pages. For very small pages, such as when printing single records onto sticky labels, it is better to disable the paging facility, and adjust the space between records using "Gap between records", above. An entry between 10 and 100 must be made.

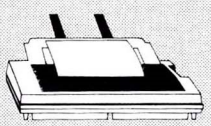
"Print data in italics? (Y/N)". If Y is pressed then data will be printed in italics, but field titles and heading information will be printed as normal, so improving the clarity of the printout.

On the next 6 lines you may enter any data to be printed as described above.

If you press EXIT at any point up to now you will be returned to the main menu, but continuing beyond line 6 will give the following prompt:

"Print Field Summary? (Y/N)". If you do not already have one for this file press Y. Prepare the printer, and then press any key. A summary of each field will be printed. An example is shown below:

FIELD SUMMARY FOR ADDRESS



Field	Title	Data
1. NAME	4	15
2. ADDRESS	7	25
3. TOWN	4	15
4. COUNTY	6	15
5. POSTCODE	8	9

You will find this helpful when setting up a template. The "Title" column gives the number of characters in the field title, and the "Data" column gives the maximum number of characters allowed for the data. The numbers down the left hand side are the field numbers.

The screen will now be showing the following information:

FIELD TITLE DATA

and in the bottom left: LINE 1.

The procedure is quite simple: For each line on the printed page you have to define what you want to see. This is best explained by referring to the above example. If you were printing an address label you would require the NAME to be printed on the first line, so under FIELD press 1. This is the field number for NAME. The next column is TITLE. Clearly you would not want the word "NAME" printed on the label, so just enter 0 (i.e. press ENTER). If, for example "4" had been entered, then the first four characters of the field title would have been printed at the start of line 1.

The next column is DATA. We want to see (presumably) the whole of the name, so enter "15".

The cursor will now move down to the next FIELD column so allowing you to print more fields on line 1. If 0 is entered the program assumes there are no more fields to be printed on this line, which is the case in our example.

If tabulating, then make sure that at least one space is left between titles and/or fields on a line. This is done by adding 1 to the number of characters. (Not needed if not tabulating).

The bottom left of the screen will now show LINE 2, so you can now enter 2 under FIELD, 0 under TITLE and 25 under DATA. This will cause 25 characters of the ADDRESS field to be printed on line 2.

And so on, but when you get to LINE 4 you may want to print the COUNTY and POSTCODE on the same line, so both these field numbers will be listed under line 4.

It is possible to print the fields in any order you like, and to repeat the same field as many times as you like. If you enter more characters than listed in the table the program will fill in with extra spaces when printing. Up to 32 lines may be defined, and up to 24 fields to a line.

You will notice that also towards the bottom left of the screen the line length is given of the current line plus the size of the left margin, if set. As fields are added to the line this number will be incremented. If it exceeds 80 then printing will automatically be reduced to ELITE size, and if it exceeds 96 it will reduce further to CONDENSED. It is not possible to exceed 142 characters.

Pressing EXIT will cancel the current line, and ask if more changes are required. Pressing Y will give you a chance to correct errors, or make changes, with previous entries given as default. Pressing N will return to the main menu.

Option 4 - Load New File

The purpose of this is to replace the file currently in use with another.

You will be prompted for a file name, with the existing one given as default (this will return to main menu if selected). Press CAN to delete, and then enter new file name. The existing file will be saved to the correct disc, followed by a prompt for the drive on which to look for the new file, or to create the file if necessary. Press A B or M.

The procedure will now be as explained for loading a file at "start of day".

Option 5 - Set up Calculation Fields

(Numeric fields only)

For some applications it is necessary for some fields to be the result of calculations on another. For example, in the case of an order form you will enter the part required, the cost, and the quantity. The next field will be the cost multiplied by the quantity. DataGem can enter this for you, and then give a grand total including VAT and carriage.

The purpose of this option is to tell DataGem what calculations to perform.

There are a few simple rules to bear in mind:

i) When calculations take place the program starts at field 1, and works through. This means that it will not be possible to have field 4 as the product of a field that is calculated after field 4. This would not be logical anyway.

ii) It is not possible to have field 1 as a calculation field.

iii) Logical operators are:

\+ plus
\- minus
* multiply
/ divide

iv) When making a calculation the order of precedence is as entered for example:

F1*F5+F6

would multiply field 1 by field 5, and then add the contents of field 6, whereas:

F6+F1*F5

would add field 1 to field 6 before multiplying by field 5. This logic is similar to most calculators.

v) The maximum number of fields that can have calculations is 25.

vi) Formulae may extend to the end of line on screen.

On selecting this option you will be given a list of all numeric fields (up to a max. of 25), the field number, the length of the field including decimal point (LEN), and the number of points (DP). Previous calculations will be given as default.

At the bottom of the screen the first field will be listed, and a prompt Amend Delete or Next.

Pressing D will delete any calculations, and move onto the next field.

Pressing N will move onto the next field.

Pressing EXIT will give an opportunity to make further changes before returning to the main menu.

Pressing A will delete calculations if they exist, and give the prompt:

"Number or Field". Press N if the calculation is to commence with a number, or F if the calculation is to commence with the contents of another field.

The cursor will be positioned by the appropriate field, and you will be prompted to enter either the number, or field as required. Press ENTER after this.

The next prompt will be to insert the correct operator, or to press "=" if the formula is complete.

DataGem has been designed to reduce the possibility of an illegal formula being entered, but it is suggested that you look out carefully for possible division by zero errors, and do make sure the length of the field is sufficient to contain all likely answers. Prompts will be given the whole time, so if you are not sure what to do look at the bottom of the screen.

After setting up calculations it is suggested you make a trial entry (option 1) to make sure it works as expected.

Option 6 - Disc Directory

This can be selected by pressing 6 from the main menu, or by pressing the down arrow when prompted for a file name.

The contents of each drive will be displayed, with drive B given as an option. Bear in mind that one file consists of three parts. For example an ADDRESS file would have on disc:

ADDRESS	(Template and general information)
ADDRESS.DTA	(The file data)
ADDRESS.IDX	(The Index, i.e. key fields)

You will be given an opportunity to delete complete files from the disc. Simply enter the file name, and then the drive. After confirmation *all three* parts will be deleted. It is not possible to delete programs or a file currently in memory.

Press EXIT when prompted to return to main menu.

Option 7 - Merge Files

This option is used to take data from one file, and add it to another. The principle is simply to tell the program which fields in the source program are to be loaded into which field in the destination program, and where to start and finish. The program will then add records to the destination file using data from the source.

This is very useful if you wish to completely change a layout, or add or delete key fields. You simply set up the new file layout (using option 0),

and then transfer all the data from the old file into it.

However, if you only have one disc drive this can be very time-consuming as it will be necessary to keep swapping discs. There is an answer though, providing the source file is no more than approx 2/3 full: (For larger files, or when 2 drives are fitted see "Transferring data files", below).

Transferring small files onto M drive (single drive computers)

Select option 9 to save all data, and when this is done press the up arrow. this will leave DataGem, and return control to the CP/M operating system. You will see:

M>

Insert your *start of day* disc in drive A, and type:

a:

submit clear.sub

Press ENTER after each line.

This will delete most data from the M drive, and you should now see ★ followed by the cursor. Insert the data disc with your *source* file (i.e. the one you will be copying from) into drive A, and type:

m: = a: *filename* .★

Press ENTER.

The file will be copied from the A drive to the M drive. If it does not then check you have the right disc and file name. (If you get an error "DATA BLOCK NOT FOUND" this means there is insufficient room on drive M, and you will need to reset the computer to start again).

Replace the start of day disc into drive A.

Now press ENTER, and the A> will return. Type:

basic db

Press ENTER.

Insert a formatted disc in drive A to receive the data from drive M, load the data now on drive M as normal and proceed to transfer it to drive A as described below.

Important – in order to gain maximum space on drive M part of DataGem and all utilities have been deleted. Several of the main menu options will not work. It will be necessary to select option 9 after transfer of data, save files, replace start of day disc and reset the computer to start again.

Transferring data between files

You must have 2 files loaded, and obviously there must be some data in the SOURCE file. (The one you are copying from). After selecting option 7 you will be asked to enter which of the two files is the SOURCE file. Press 1 or 2. There will be a short pause if you selected 2, while the program swaps the two files about. (It is necessary for the first one to be the SOURCE).

The layout of the SOURCE file will be shown on screen, and at the very bottom will be the first field of the DESTINATION file (and it's details), with a prompt asking for the field name of the source file to be transferred. You may use the up and down arrows to change the destination file.

The only rule is that the source and destination fields MUST be of the same type (C,N,D,or M). If the destination field is shorter than the source (type C) you will be asked to confirm to continue, because data may be lost as the field is shortened.

Having selected which fields are to be transferred to which you will now be asked to enter which key field of the SOURCE file is to be used to search, and where to start and finish, as when searching using option 2.

If the key field is not a character field it is essential to make an entry in the "From" and "To" prompts. e.g. If it is a 3 digit numeric field you might enter 0 in the "From" and "999" in the "To".

Data will now be transferred, with progress being indicated at the bottom of the screen. It will stop when completed, or if the DESTINATION file is full. Any calculations will be made if necessary to records as they are added, taking into account the data transferred.

If the source and destination are both on the same drive, but different discs, you will be prompted to change discs at the right time. *With long files this may be very often*. This only applies to single drive computers.

The option will be given to make further transfers, or EXIT to main menu. After making a transfer, the SOURCE file will always be file number 1.

Transferring data with two disc drives

If you have two drives fitted, and wish to swap data between discs of the same type (don't forget you should not put the wrong disc type in the wrong drive), then proceed as follows:

1. From single density to single density (CF2) discs: Use the PIP utility to swap the SOURCE file onto a CF2-d disc in drive B. (Appendix C). It can be erased after use.

2. From double density to double density (CF2-d) discs: It will be necessary to split the SOURCE disc temporarily into smaller files, assuming it is too large to be transferred to a CF2 disc with PIP. Set up new files (using the existing SOURCE file template) on CF2 discs, and then transfer data from the SOURCE disc (in drive B) to these temporary files. The data can then be swapped from these temporary files into the DESTINATION file on drive B. This may seem quite long winded, but it is due to the simple "physical" fact that the A and B drives are of different types, and this method is much quicker than re-entering hundreds or thousands of records.

Option 8 - Function Keys

The four function keys (labeled f1 to f8) can be "programmed" to hold data that is commonly used in DataGem, such as, for example, today's date when entering records.

Each function key is associated with the file currently in use, and will be stored with that file on disc. This means that when swapping between files the function keys will also change.

They are not affected by the SHIFT key; i.e. f2, f4, f6 and f8 are the same as f1, f3, f5, and f7.

Up to forty characters may be programmed into each key.

When used, the program takes a character at a time from the function key, checks it is valid for that particular input, and then displays it on the screen.

After entering data into each key, or making amendments to the function keys press EXIT for the main menu.

Option 9 – Finish/Change Disc

This is perhaps the most important option. It MUST be used to clear data from memory and save to disc before finishing. If you wish to change to a different file, rather than finish, then use option 4.

After confirming you want to continue, the program will automatically save all data, and give prompts to change discs if necessary.

After selecting this option you can use the utilities on drive M by pressing the UP arrow. (Appendix G)

Example Applications

Several example applications are included with DataGem. The main purpose of these is to give you ideas, to help see how files can be set up for a variety of uses, and for experimenting. You can, of course, use these as they are or amend them, but usually it would be better to design your own file layouts to meet your exact requirements.

If you do decide to use any of the files, then don't forget to PIP the required file onto a spare disc. (Appendix C). The examples were all created on drive A. If you have a second drive fitted, and wish to use any of these files on it, you will need to set up a new file, but set it up using the required file "template". (Option 0). This will give approx. four times the number of records maximum for each file.

Don't forget: If you put valuable data on disc to keep a regular back-up copy. This is very easy, and is explained in appendix B.

Internal Telephone Directory (File name EXTNS)

This is a very simple, but useful application. Three key fields have been used, which means the directory can be listed in order of department, name, or number. Any new entry or amendment will mean all three lists will be updated automatically. This will considerably simplify keeping a large directory up to date.

Only one template has been configured for printing, but the second one could perhaps be used to give an alphabetical list of just names and numbers.

Up to 1250 entries will fit on one side of a disc, or over 5000 on the second drive.

Personnel Records (File name PRSNL)

This example file has 4 key fields: Surname, Date of Birth, Duty Reference, and Current Pay, plus 28 other fields.

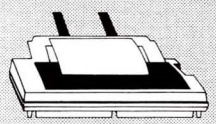
Almost certainly an application of this type would need to be set up with the specific needs of your company in mind, but the example does show the amount of data that can be stored on just one record.

DataGem would be able to supply printed lists of employees according to pre-defined criteria (e.g. Age, seniority, duty reference, surname etc.), but only show certain information. It would also be quite easy to print address labels direct from this file, or transfer the data into a mailing list, or even telephone directory. Searches and amendments would be easy.

In some cases, it may be more useful to keep training records as a separate file (both files could be used at the same time). This would allow large files to be easily handled.

Page 1

Confidential.



PERSONNEL RECORDS

SURNAME *Gardiner* OTHER NAMES *Charles Albert* TITLE *Mr* SEX *M*

NAT INSURANCE NO. *AB123456Z* DATE OF BIRTH *4/4/30* DUTY REF *MBS 28*
WEEKLY/MONTHLY PAID *M* *CURRENT PAY 18,654.00*
INCREMENTAL DATE FROM *1/1/80*

HOME ADDRESS *289 Waterslade Road*
TOWN *Malling,*
COUNTY/POST CODE *Sussex. MA4 9YT* HOME TELEPHONE 8373 636333

PREVIOUS POSITION (+ DATES) .... *ICI – Trainee Clerk 1949-1950*
PREVIOUS POSITION 2 ..... *London University 1950-1953 (Law degree)*
PREVIOUS POSITION 3 ..... *British Steel – Legal Advisor 1954-1968*
PREVIOUS POSITION 4 ..... *Joe Soap Bikes – Assistant Company Secretary 1968-76*
PREVIOUS POSITION 5 .....
PREVIOUS POSITION 6 .....
PREVIOUS POSITION 7 .....
PREVIOUS POSITION 8 .....
PRESENT COMPANY POSITION .... *Company Secretary*

QUALIFICATIONS 1 ..... *Law Degree (1st)*
QUALIFICATIONS 2 ..... *Member of IMCA*
QUALIFICATIONS 3 .....
QUALIFICATIONS 4 .....
QUALIFICATIONS 5 .....
QUALIFICATIONS 6 .....
QUALIFICATIONS 7 .....

OTHER DETAILS *None*

Mailing List (File name MAIL)

DataGem has facilities of special interest to those needing to produce mailing lists, and print address labels.

1. It is possible to print a different number of labels for each address. Simply enter the number of copies in field 1 ("NUMBER OF COPIES TO PRINT"), and then select the AUTO facility when printing.

2. The heading can be used to give a "return to" address on each label. Printing the address in italics will help keep the two pieces of information separate.
Alternatively, the "heading" can be printed at the bottom of the label by simply re-aligning the the labels in printer.

3. Tabulation can be "switched off" (option 3). This means that when two fields are printed on the same line all spaces except one are removed between the fields.

4. Using the second printing template will enable a check list of addresses to be produced. This can be printed using condensed print, so saving paper.

5. Additional fields can be included according to needs: e.g. Details of products, locality (labels can be printed in locality order by setting postcode as a key field). Only those fields selected need be printed.

6. All, or some, of the data can be merged into different files if necessary.

7. The example file will hold 1,200 addresses, or nearly 5,000 on the second drive. If this was ever exceeded it would be quite easy to split the data over several files.

8. Addresses can be printed in order of locality, by selecting LOCALITY as the key field when using option 2. The locality number will be as defined by the user. e.g. Kent = 1, Sussex = 2 etc.

Orders Forms (File name ORDERS)

The purpose of this example is to demonstrate the advantages of using DataGem for the simple task of filling in an order form. It is also useful to use this to see how calculation fields work, and can be set up.

The advantages are as follows:

1. Very easy to complete. All sub-totals, VAT, carriage and total costs are calculated and entered by DataGem.

2. Summarises according to enquiry date, required by date, order numbers etc. easily produced. This can be either the complete form, or selected information.

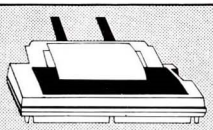
3. Totals and averages of all fields can be given for specific customers, or within a range of dates. (e.g. amounts due for one week)

4. Invoices and address labels can be printed automatically.

5. Summary of items sold can be produced.

It may be useful to, on a weekly, or perhaps monthly basis, merge some of the data on this file into a "summary" file, or perhaps to produce a mailing list of customers.

Page 1



VAT registration number 123456789

G.G. SMITHSON & CO. LTD. OF ROCHESTER TELEPHONE 0634 1234

LOCAL ORDERS

CUSTOMER'S NAME *Jones* ORDER NO. *876868*
ADDRESS *45 High St., Toytown.*

ENQ DATE *28/2/86* REQUIRED DATE *28/3/86* CUSTOMERS REFERENCE 65241 *DF*

ITEM1 *AC15 Printed Circuit Board*	QTY1	*9*	COST 1	*134.77*	SUB TOT1	*1212.93*
ITEM2 *Fuses Number 44/1.5*	QTY2	*200*	COST2	*0.19*	SUB TOT2	*38.00*
ITEM3 *Bulbs Number 77/40W*	QTY3	*10*	COST3	*2.33*	SUB TOT3	*12.33*
ITEM4 *Tool box – general purpose*	QTY4	*1*	COST4	*23.55*	SUB TOT4	*23.55*
ITEM5	QTY5	*0*	COST5	*0.00*	SUB TOT5	*0.00*

NET TOTAL	*1286.81*
VAT AT 15%	*193.02*
CARRIAGE AT 15% OF NET TOTAL	*64.34*
AMOUNT DUE	*1544.17*

DELIVER TO *As above, for the attention of Mr Wilkins.*
OTHER DETAILS *Send invoice to department A31*

School Reports (File name REPORTS)

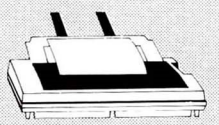
Most schools can find many uses for a good database program. Even if writing school reports is not one of them, it will help show the potential.

This file will hold about 190 reports in drive A, or nearly 800 in drive B. If this is not enough then sub-dividing into upper/lower school or by year should solve the problem.

The total and average mark is calculated automatically for each pupil.

If pupil records are kept (see next example), this file may be used to feed names, ages, date of birth etc. into the REPORTS file, and then print all the blank forms ready for completion by hand.

For many schools it will be more appropriate to simply keep on the computer limited information, such as subjects taken, marks, attendance record and so on. This can then be summarised using DataGem.



SCHOOL REPORT

PUPIL'S SURNAME *Smith* OTHER NAMES *Jonathan.N.* SEX *M* FORM *2A*
DATE OF BIRTH *12/6/71* AGE *12*

ENGLISH L.	MARK	*67*	*Good Progress.*
ENG. LIT.	MARK	*39*	*Lacks Interest – Could do better.*
FRENCH	MARK	*59*	*Excellent, both written and spoken*
MATHS	MARK	*64*	*Good, but Algebra needs attention.*
WOODWORK	MARK	*62*	*Imaginative and Inspiring.*
PHYSICS	MARK	*25*	*Very poor. Seems uninterested.*
CHEMISTRY	MARK	*31*	*Slow, steady progress.*
COMPUTING	MARK	*78*	*Very good. Should make a good programmer later.*
(UNAPPLIED)	MARK	*0*	

FORM MASTER *A. Thompson*
COMMENTS *Good steady results. Attentive pupil generally.*

HEAD'S COMMENTS *Satisfactory.*

AVERAGE MARK % *53.1* PERFORMANCE % *74.7* ROLL NUMBER *AS457*

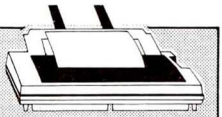
NUMBER IN CLASS *19* POSITION IN CLASS *1*

Pupil Records (File name PUPILS)

This offers a similar facility to personnel records.

Apart from the normal advantages of using a computer to keep records such as these (i.e. ease of sorting, searching, printing, amending etc.) it is also very easy to print a handy reference of parents names/telephone numbers, or to print address labels direct from the pupils records. This could be done, say, for just 2nd year pupils, or for the whole school. This is included as printer template 2 in the example file.

Lists of pupils by age, sex, form or perhaps taking a particular subject (search for embedded word), are produced very quickly.



Confidential.

ROCHESTER SECONDARY SCHOOL – LIST OF PUPILS

PUPIL'S SURNAME *Barnes* OTHER NAMES *George F.* SEX *M* FORM *2A*

DATE OF BIRTH *28/2/71* TITLE/INTLS *Mr F.* PHONE *0753 83774*

PARENT'S/GUARDIAN SURNAME Barnes
ADDRESS ..... *45 Kings Road*
AREA ..... *Walderslade,*
TOWN ..... *Luton,*
COUNTY ..... *Bucks.* POSTCODE *LU5 5DD*

OTHER PERSONAL DETAILS *None*
SUBJECTS TAKEN *English L/Eng Lit/French/Maths/Woodwork/Physics/Chemistry/Computing.*

ROLL NUMBER *756*

PUPIL'S SURNAME *Davies* OTHER NAMES *Gary* SEX *M* FORM *2A*

DATE OF BIRTH *17/2/71*

PARENT/GUARDIAN SURNAME Davies TITLE/INTLS *Mr X.* PHONE *0321 65664*
ADDRESS ..... *"Dunroamin"*
AREA ..... *Ramsgate*
TOWN .....
COUNTY ..... *Kent.* POSTCODE *RA3 7GG*

OTHER PERSONAL DETAILS *None*
SUBJECTS TAKEN *English L/Eng Lit/French/Maths/Woodwork/Physics/Chemistry/Computing.*

ROLL NUMBER *868*

PUPIL'S SURNAME *Smith* OTHER NAMES *Jonathan N.* SEX *M* FORM *2A*

DATE OF BIRTH *12/6/71*

PARENT'S/GUARDIAN SURNAME *White* TITLE/INTLS *Miss L.* PHONE *023 6666*
ADDRESS ..... *45 Betscombe Rd,*
AREA ..... *Biggleswade,*
TOWN ..... *Ambridge,*
COUNTY ..... *Devon.* POSTCODE *AM5 9QQ*

OTHER PERSONAL DETAILS *Has attended 2 other secondary schools.*
SUBJECTS TAKEN *English L/Eng Lit/French/Maths/Woodwork/Physics/Chemistry/Computing.*

ROLL NUMBER *457*

Specification

Mode of use: Menu driven with prompts.

Records: Up to 32,000 or disc capacity.

Drives: A, B and M.

Record size: 1498 characters.

Fields: 32 Max.

Key Fields: (used for index). Up to 31 characters indexed. Up to 8 key fields. Any field may be a key field, irrespective of type or size.

Character fields: Up to 88 characters, but fields can be appended up to 1498 characters. Single digit fields can have user defined limited entry.

Numeric fields: 9 characters, 8 decimal places, 8 significant digits. Size user definable.

Date fields: DD/MM/YY format. Sorted in chronological order, and checked by program for leap years etc.

Money Fields: Similar to numeric, but with commas inserted automatically.

Files: Up to 2 open at the same time.

Printing: User definable, using two templates for each file. Includes many printer facilities (print size, italics etc.)

Function Keys: Up to 4 user definable keys (40 characters) for each file.

Screen: A record may occupy up to 27 rows and 89 columns. Fields can be placed anywhere on the screen. The program will automatically fit as many records as possible onto the screen.

Amendments: Any record screened can be amended or deleted.

Search: By key field (within range), on any field (up to 32 criteria), by embedded word/phrase.

Calculations: Uses multiply, divide, add and subtract on numeric fields.

Printed Summary: Includes data found, records in file, search criteria, numeric and money totals/averages.

Merge files: Data from any field(s) in any file can be added to another file. The fields must be the same type.

Editing: Full facilities, as explained in manual including restoring original data.

Appendix A

Using DIR facility. Although option 6 from the main menu will give a list of files on the disc, it is possible to get fuller details, including the size of files in kilo bytes. See the Amstrad Manual book 1 page 70.

Enter C/PM as explained in appendix G.

To get a directory for drive A type.

dir a: [size]

and then press ENTER. Note the use of square brackets.

See appendix G for return to DataGem.

Appendix B

Using DISCKIT. This can be used for formatting discs, and copying discs. See the Amstrad manual book 1 page 73. For two drive computers see also the manual supplied with the second drive. When copying discs with one drive fitted this will be done in four sections, instead of the usual two.

Enter CP/M as per appendix G, and then type:

diskit

Return to DataGem as described in appendix G.

Appendix C

Using PIP command. This is a very powerful and useful utility, and is described fully in the Amstrad manual book 1 page 78. Its main use is to transfer programs and files between disc drives. You may have noticed it is automatically used when loading DataGem to move data onto the M drive.

Enter CP/M as per appendix G.

If used to shift DataGem files between discs, then use the following format:

e.g. to move a file called "address" from drive A to drive B type:

pip b: = a: address .* [o]

Always type [o] after the command as shown. This is the letter o, and with square brackets.

This will move all 3 files associated with address across to the B drive. If only one drive is fitted you will be given prompts to change discs at the right time.

It is especially useful with two drive systems to shift up to 4 files created on drive A onto a disc in drive B, which has 4 times the capacity.

If you have two drives fitted, using PIP is the only time you may put a CF2 disc in the B drive. It will then be possible to copy FROM that disc to the A drive.

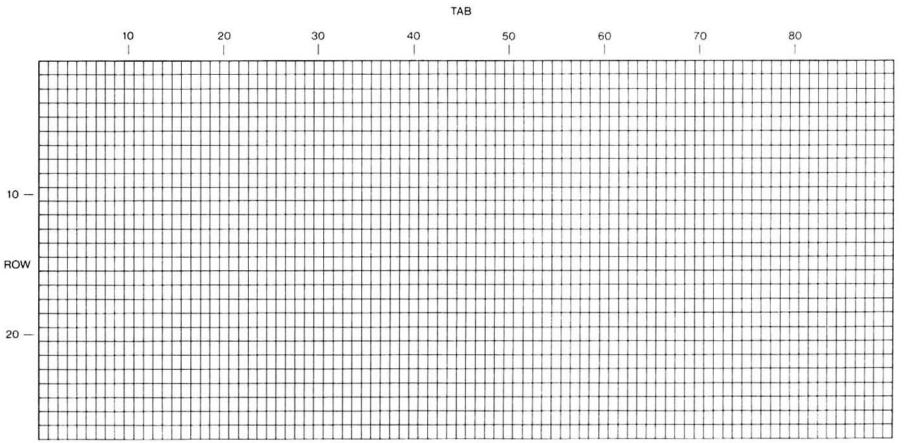
See appendix G for return to DataGem.

Appendix D

Restoring corrupt files. If you switch off without using option 9, or in some way "crash" DataGem it is possible that the information held in the template does not tie up with the actual data. (e.g. the number of records). To overcome this problem set up a new file using the old template, and then transfer all data into it using option 7.

If you ever get a three part error coding ending in the number 115 this means that the computer was switched off, or wrong disc inserted or similar error when a file was open. (e.g. when entering records). In this very rare circumstances it will unfortunately not be possible to retrieve data, and it will be necessary for you to use your back-up copy of the file.

Apendix E - Screen Layout Design



Appendix F

Using the printer. The PTR key is described in the Amstrad manual book 1 pages 119-121. You will not need the "Hex Dump" facility described. The default values referred to on page 121 are amended as follows when using DataGem:

Line pitch	6 lines per inch
Form Length	66 lines
Gap Length	3 lines
Continuous Stationery	
Paper Out Defeat	ON

Do not use the PAPER utility referred to when using DataGem.

When printing, the computer sends data to the printer much faster than it is able to print, and so the printer stores this data in a specific memory called a "buffer". On the Amstrad this is quite large, and has the advantage that printing can finish while you carry on using the computer for the next commands. Unfortunately, this also means that pressing EXIT will not work instantly if you want to stop printing, because the buffer may already be full.

If you just want to pause (without losing any data) press PTR. Pressing EXIT will then start printing again. If you want to abort a listing press EXIT first (to stop the program sending more data to the printer), and then press PTR to stop the printer. Use the arrow keys to move the cursor to RESET and then press + (to the left of space bar). This will clear the buffer. Press EXIT and then continue as indicated in manual.

Appendix G

Using CP/M Utilities. These are supplied by Amstrad, and some of these were transferred onto your "start of day disc". See appendix A, B and C.

To enter the CP/M operating system first select option 9, and after saving all data press any key. When the prompt "Enter File Name" appears press the up arrow. The screen will clear and the M> will appear. This means that all commands now entered will relate to the M drive. If you type:

a:

the A> will appear and all commands will relate to the A drive. Full details of using CP/M will be found in the Amstrad Manual book 1. You will only need to use a few of the utilities, and the main ones are described in this manual, with reference to the Amstrad manual when necessary. PIP DIR and DISCKIT are held on the M drive when DataGem is in use.

When you wish to return to DataGem it is important to get back to the M> by typing:

m:

(Unless it is there already). The next command is:

basic db

press ENTER.

The main menu for DataGem will be shown.

Additional note for PCW 8512 Users

DataGem will work with the PCW 8512 in exactly the same way as the PCW 8256, except it *will* be possible to make full use of the larger RAM disc, (drive M). Warnings about not using drive M elsewhere in this manual will not apply to 8512 users, and it will not be necessary to use "submit clear.sub" command explained on page 35 when transferring files onto the M drive.

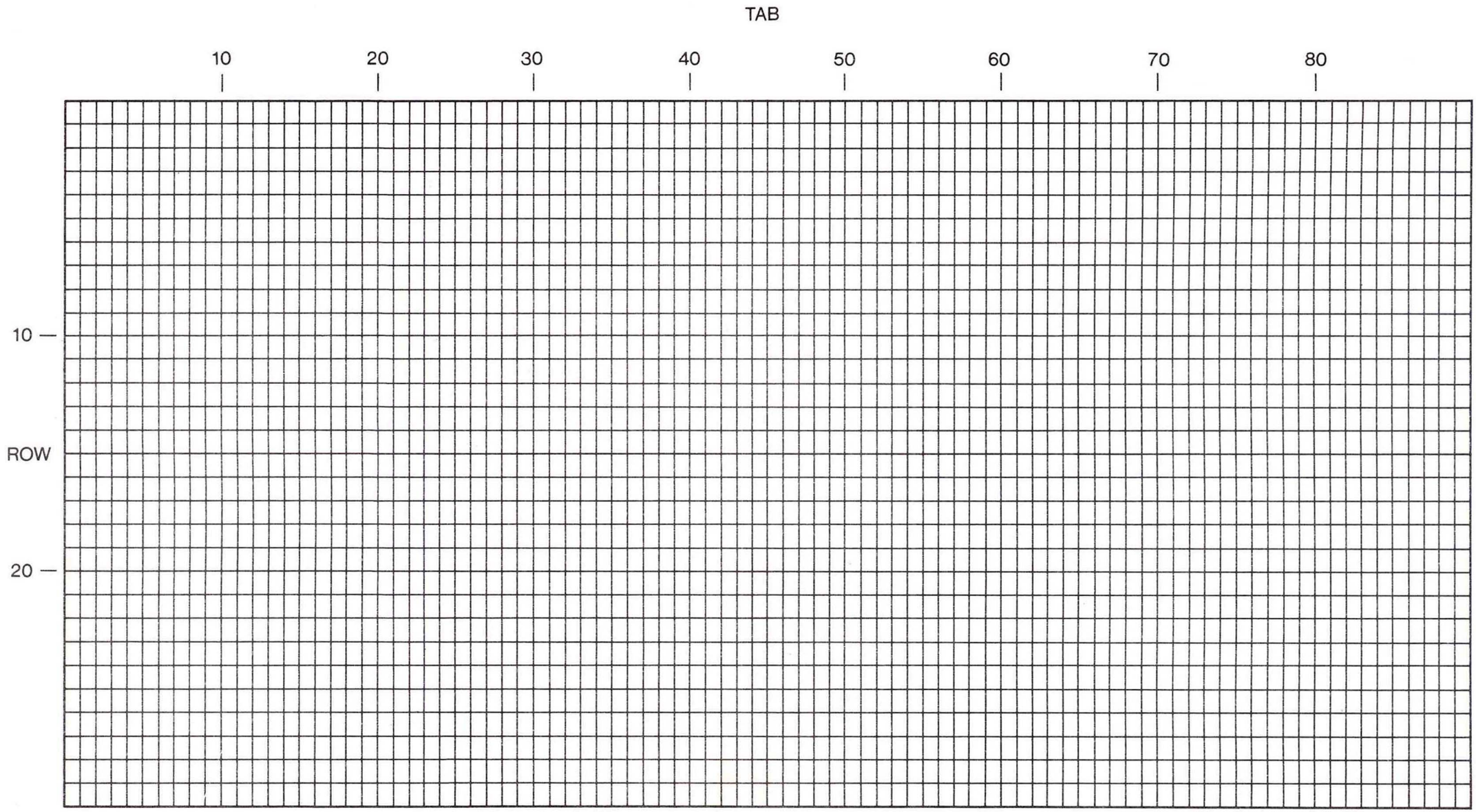
Drive M behaves in just the same way as drives A and B, except it is much faster, *but data will be lost when the computer is switched off.* The main advantage will be when making many complicated searches and/or amendments to a file, or when merging files. (Put the SOURCE file on drive M).

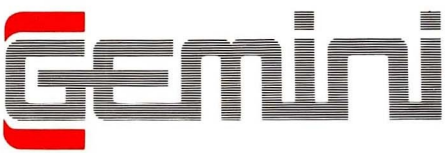
A file can be transferred onto the M drive using the PIP utility explained in Appendix C, page 44. If it is necessary to keep this data after switching off don't forget to PIP the data back onto a disc before switching off. Make sure you keep a back-up copy.

Do not *create* a file on Drive M and then PIP it onto another drive, because the program will have set the maximum number of records according to the space on drive M, which differs from the other drives. The only exception will be when it is clear you will never exceed disc space. i.e. Small files.

There may not be room on drive M to accept some very large files from drive B.

Appendix E – Screen Layout Design





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Micro Computer Software