



Manual and User Guide for

Database

Amstrad CPC 464



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Database

Amstrad CPC 464

User Manual

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1 General System Overview

The Gemini Database management system for the Amstrad CPC 464 microcomputer is designed for a hardware system consisting of:

- i) Amstrad CPC 464 microcomputer with either cassette or disk data storage.
- ii) Optional 80 column printer.

The database allows the user to store and access records on a completely definable card, much like a standard card index system. The card format and records are stored on a data file on cassette which is saved and loaded through the database. The program may be used to store as many different types of card as you wish. Approximately 14000 characters of information may be stored (13000 on disk versions) and the number of cards that may be held depends entirely on the size of the record card designed. The program includes the following features:

- user definable card using either 80 or 40 column screen.
- calculations enabling use of any legal Locomotive BASIC expressions.
- fast 'heap' sort enabling both numeric and string comparisons plus upper/lower case non-discrimination and surname sort capability.
- extensive search capabilities allowing all valid Locomotive BASIC logical expressions plus 'wild cards'.
- fully user-definable field summary.
- comprehensive browse option enabling printing, editing and deleting of records directly while moving up and down through a file.

2 Terminology

It may be useful to explain some of the terms used in this manual, comparing the database to a manual card index.

File — a file is a complete 'box' of cards. The database can store files on tape.

Record — each card is known as a database record.

Field — each card will contain a number of items of information, and they are referred to as fields or headings. DATABASE may process up to 20 fields, each of which may be up to 160 characters long.

3 Operating Notes

3.1 INPUT ROUTINES

When the program requests information from you, there are two ways in which the information may be entered.

- i) 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». On these inputs a default answer may also appear — e.g. when asked for a file name, the default name 'DBDATA' will appear — just press «ENTER» for this name.

Throughout the program a specially designed line editor is used to enable the user to edit any data entered into the program. Essentially you are required to type in the data and press «ENTER», but in addition you may use the following keys to perform particular functions:

«COPY» — insert a space at the current cursor position to enable insertion of another character.

«DEL» — delete character to left of current cursor position.

«CLR» — delete character at the current cursor position.

«←» (CRSR LEFT) and «→» (CRSR RIGHT) — move cursor left or right of current cursor position without deleting.

- ii) If the response required is just a single letter, e.g. "Delete current record (Y/N)?", then you are not required to press the «ENTER» key after selecting the appropriate letter.

3.2 ESCAPE

Throughout the running of the program it is usually possible to return to the Main Menu. This is done by pressing «TAB» (the green key positioned below the «ESC» key at the top left hand corner of the keyboard). The «TAB» key may perform certain other functions within each option, for these refer to the options.

3.3 ERRORS

If an error occurs during the execution of either the Search or Calculate options, an error message will be screened, and after pressing space bar, the program will return to the offending option.

When any other Error occurs a message will be displayed at the bottom of the screen. To continue execution of the program press space bar.

ERROR MESSAGE MEANINGS:

NUMBER OF FIELDS CHANGED — If having previously set up a card and added records you decide to reformat the card, this error message would occur after either adding or deleting a field.

NO FIELDS DEFINED — You have attempted to format a card with no fields on it.

FIELD TOO LONG — You have defined a field of over 160 characters.

TOO MANY FIELDS — You have more than 20 fields on your card.

FIELD LENGTH CHANGED — If having previously set up a card and added records you decide to reformat the card, this error message would occur after altering the length of any of the fields.

RECORD FORMAT TOO LARGE — You have defined a card with the total length of each field adding up to over 1000 characters.

SUMMARY TOO LONG — The summary you have defined will take up more room than is possible to display on the screen.

TOO COMPLEX — The definition (calculation, search) is too long.

INCORRECT DEFINITION — The definition you have specified is illogical.

EVALUATION ERROR — While calculating in either the calculate or search routines, an error such as division by zero has occurred.

3.4 FILE INFORMATION

At the top of the screen there are four numbers. These are:

Records Used (RU) — The number of records currently in memory.

Records Found (RF) — The number of records found in the last search.

Current Record (CR) — The record currently being accessed in some way (e.g. viewing in browse mode).

Records Remaining (RR) — The number of records remaining.

3.5 DATA FILES AND SECURITY

It is strongly suggested that you keep at least one backup copy of the data file currently being used.

3.6 PRINTER OUTPUT

Due to the incompatibility of printers, certain characters will not appear on the printer as they do on the screen.

3.7 EVALUATION ERRORS

These can occur in either calculate or search options and can be due to many things such as division by zero but also if a «+», «-» or «.» is placed in a field without a number. This is unfortunately an idiosyncrasy of the Amstrad BASIC.

e.g. '.', '++++++', '-----'

3.8 GETTING FROM BASIC BACK INTO THE PROGRAM

If at any stage you inadvertently exit from the program into BASIC it should by possible to return into the program by typing — GOTO 50 «ENTER».

3.9 STARTING A NEW FILE

To start a new file, after using another, use Option E to exit into BASIC then type — RUN «ENTER».

4 Getting Started

Before loading the program, ensure that the computer is fully reset by switching it briefly off then on again.

TAPE SYSTEMS

Place the cassette in the tape recorder and rewind to the beginning of the correct side. Press «CTRL»«ENTER» (positioned on the numeric key pad) together and then press play on the recorder followed by pressing a key. The program will load and automatically run, presenting you with the Main Menu.

DISK SYSTEMS

Place the disk in the drive and then type:

RUN "DATABASE" ENTER

The program will load and automatically run, presenting you with a Main Menu.

SETTING UP A NEW DATA FILE

To set up a new data file use Option H to design the card format and field titles by which the fields will be referred.

5 The Main Menu

This menu lists a total of 14 options. In the following section each will be discussed in turn.

Throughout this section the examples refer to the mailist demonstration file (side 1 of tape).

To load the mailist demonstration file, select Option L (the LOAD FILE option) and press «ENTER» for the default filename of 'DBDATA' followed by starting the tape (if applicable), and pressing the space bar.

OPTION A — ADD RECORDS

The ADD option allows you to add new records to the file.

The extend of each field is indicated with small blocks which will be removed as each record is added. The program will automatically move from one field to the next — type in/edit the field contents and press «ENTER».

To leave this option and cancel the record currently on the screen press «TAB».

OPTION B — BROWSE/AMEND RECORDS

To start browsing from the beginning of the file press «ENTER» in response to the prompt "From which record?" otherwise enter the record number required. The record selected will then be displayed. The information at the top of the screen will now show CR together with the record number and if the record displayed was one found in the last search, the word "FOUND" will be printed in the top left hand corner.

Within the Browse/Amend option certain keys will carry out particular functions as follows:

«↓» Down Cursor — This is used to browse down through the file (1, 2, 3, 4...).

«↑» Up Cursor — This is used to browse up through the file (... 4, 3, 2, 1).

«A» — This is used to amend the record currently on the screen. The way in which it operates is similar to the Add Records option except that you are presented with the record on the screen as the default in each field. Once the last field has been amended you will be returned to browse mode. If you use «TAB» during amend then it will be aborted and you will be returned to the Main Menu.

«D» — This is used to delete the record currently on the screen. (You will be asked to confirm deletion.)

«P» — This may be used, if you have a printer, to print out the record currently displayed. (Do not use this if a printer is not connected.)

«TAB» — This enables you to return to the Main Menu.

OPTION C — CALCULATIONS

There are two types of calculation that may be performed.

i) **Total**

Nominate any field, and the program will give you the total and average value for the contents of that field for a given range of records on the file.

ii) **Update**

Using this facility, you can perform calculations on any of the fields in a record, and place the result in any given field. First of all nominate the range of records for which the calculation is to be carried out (the first and last record inclusive). Next press «U» to update. Now press the space bar and type in the calculation, e.g. $F6 = F4 * F5$ will place the result of the contents of field 4 multiplied by the contents of field 5 into field 6. You may use «+», «-», «*», «/» (add, subtract, multiply, and divide respectively), or any other of the Amstrad's built-in functions (e.g. SIN, ↑, LOG, etc.).

After entering the formula you will be asked whether you require the result to be right justified, this will place the result to the right of the destination field e.g. the numbers 100, 10 and 8475 will be displayed as:

```
100
 10
8475
```

and not:

```
100
 10
8475
```

The last prompt is whether you require a numeric or string calculation. — the calculations so far mentioned have been numeric, but string calculations are also possible. To use this facility to its full you will need to have a certain knowledge of BASIC. However, there are some functions which may be carried out without any knowledge of BASIC. You may append two fields together by simply entering the calculation and specifying that you wish to carry out a string calculation. E.g. `f3 = f1 + " " + f2` where field one contains 'Smith' and field 2 contains 'John', then the result in field 3 would be 'John Smith'. (BASIC string handling functions include `left$, right$, mid$, instr, etc.`)

NOTE — If the result of a calculation takes up more room than is available in the destination field then an overflow will be indicated by «↑» being placed throughout that field.

OPTION D — DELETE RECORDS

Use this option to remove selected records from the file. After entering the start and finish records, (e.g. `10,15 «ENTER»`) you will be prompted to confirm deletion. Note that deleting records will cause the numbers of certain records on the file to change. E.g. if you delete record 1 then records 2 upwards will move down one record.

OPTION E — EXIT PROGRAM

This enables you to exit the program into BASIC.

OPTION F — FIND RECORDS

Use this option to search for particular records and position them at the beginning of the file.

Firstly, the fields are listed, and you are asked to enter the Start and finish record (e.g. `5,10 «ENTER»`). Next press the space bar and enter the search definition. The easiest way to understand the definition format is by a simple example:

e.g. `F6 = "SD7 3ED" OR F6 = "EX8 2JK "`

— this means to search for all the SD7 3EDs and EX8 2JKs; the postcode being in field 6.

The ways of defining how to search are as follows:

- AND** — to define two criteria, both of which must be satisfied.
- OR** — to define two criteria, either of which must be satisfied.
- = — 'equals'
- < — 'less than'
- > — 'greater than'
- <> — 'not equal to'
- <= — 'less than or equal to'
- >= — 'greater than or equal to'

You may either place the text to be searched for in quotes, e.g. F1 < "C", for which in this particular case the program will look for names which are alphabetically before C, or you may omit the quotes and enter a number as the search data, e.g. F7 < 300000 — this will search for telephone numbers less than 300000.

The method of looking for particular text in a field may not be entirely satisfactory, for example you may wish to search for a record which has the name Brown in field 1, but the actual field contents are Mrs Brown. In this case you may use an asterisk within the quotes — the definition F1 = "*Brown" would mean search for all records in which the text Brown appears anywhere within field 1, regardless of anything else within the field.

Some examples of other search definitions are:

```
F4 > "M" AND F1 = "*BROWN"  
F4 = "SIDMOUTH" OR F2 = "*ROAD"  
F6 = "*7HG" AND F4 > "A" AND F2 = "*CLOSE"
```

After entering the search definition you are prompted with "Numeric or string search (N/S)?" . If you press «N» each field will be evaluated before doing the comparison. This means that "fred" = "bert" would be true if evaluated because they both have the value of zero. Also 1000.00 = "+1000" would be true because upon evaluation they both have the value of one thousand.

The search will then be carried out and afterwards the number of records found will be displayed at the top of the screen alongside the letters RF.

NOTE — There is no discrimination between upper and lower case, so for instance 'BrOwN' is the same as 'brown'.

OPTION G — PRINT RECORDS

This option enables any number of records to be output to the printer. When choosing this option you will be prompted to enter the first and last records to be printed, e.g. 1,6. If at any stage during printing you wish to return to the Main Menu hold down the «TAB» key for a few seconds.

NOTE — If the records printed were found in the last search "(FOUND)" will be printed alongside the record number.

OPTION H — REFORMAT/SETUP CARD

Use this option when setting up or reformatting a card. If you have not loaded an existing file, you will be required to select 40 or 80 column mode. Once selected you will be presented with a blank card. Anything that you type in will be entered on the card at the current cursor position (indicated by the flashing square). The cursor keys (arrow keys at the top right hand corner of the keyboard) may be used to move around the card.

In this way you can set up any text, graphics, etc., that you wish to have on the card. This text will be displayed on every record. The individual record data will be stored in the fields.

To define a field, position the cursor where you require the field to begin and then use «COPY» to type small blocks to show the extent of the field. A field can be up to 160 characters in length and you may have up to 20 fields.

Other special function keys are:

«ENTER» — move cursor to beginning of next line.

«DEL» — move cursor left one and delete character.

When you have finished defining the card, press the «TAB» key. The program will scan the card, looking for fields. For each one that it finds, it will ask you to give the field title, i.e. what you wish to call the field.

If an error is detected in the card set up then a message will be printed and after pressing a key you will be returned to setting up the card.

If all is correct, the fields will be listed with their titles and maximum lengths. Press «Y» or «N» to the prompt "Field titles correct (Y/N)?" If

no, you will be returned to the card set up procedure to alter it as necessary.

A special feature of this option is that at any stage during the use of a file you can alter the card design (but fields cannot be shortened). If however you wish to shorten, lengthen, add or delete a field then it will be necessary to go through the following procedure (this is unnecessary if there are no records in memory):

- i) Save all the records.
- ii) Delete all the records.
- iii) Reformat the card as required.
- iv) Append the records into memory.

NOTE — Remember to use Option J to save the card even if you do not add any records.

OPTION I — SORT RECORDS

This option enables you to sort selected records in various ways.

When selected you will be prompted to enter the field number on which the sort is to be executed and the last record to be included within the sort (e.g. if you enter 10 then the routine will sort records 1,10). You will then be prompted with "Numeric or string sort (N/S)?" This is asking whether you wish the sort to make string or numeric comparisons (refer to find records option). If you choose to do a numeric sort then the sort will commence otherwise you will be prompted further. "Surname sort (Y/N)?" This enables you to sort names by surname if the names are for example John Smith, Mr John Smith, Mr J. A. Smith, Mr John Andrew Smith, Mr J.A.Smith, etc. Lastly you will be prompted with "Case discrimination (Y/N)?" — this enables you, by pressing «Y», to sort a string field regardless of capitals as if all the characters are in one case (e.g. 'Robert Smith' would be the same as 'robert smith').

Once the sort is completed you will be returned to the Main Menu.

OPTION J — SAVE FILE

This saves the card format, the field summary definition and selected records onto tape/disk. Enter the first and last records required to be saved followed by a filename. once you have pressed «ENTER» you will be prompted to start the tape (if applicable) and press the space bar — then saving will commence. If an error occurs you will be returned to the first prompt.

OPTION K — APPEND RECORDS

This option adds a file to the records currently in memory. When chosen you will be prompted for the filename — press «ENTER» for the default or enter the filename as required and press «ENTER».

Note that any previously saved file can be appended regardless of its format, but records loaded will be adjusted to the format of the current file in memory. Also if the file you wish to append has more records than are currently available then the program will append as many as possible.

OPTION L — LOAD FILE

This clears out any data currently in memory and loads a file including card, field summary definition and record data. When chosen you will be prompted for the filename — press «ENTER» for the default of 'DBDATA' or type in the file name and press «ENTER».

OPTION M — FIELD SUMMARY

This is the option used to obtain a printed or screened summary in columns of certain fields. Before using this option it is necessary to use Option N to format the field summary. When chosen you will be prompted for the following:

- i) Enter records (start, finish) — type first record then press «,» and last record «ENTER».
- ii) To screen or printer (S/P)? — press «S» for screen output or press «P» for printer output.

The summary will then be printed or screened. If at any stage you wish to stop press «TAB» and you will be returned to the Main Menu.

OPTION N — FORMAT FIELD SUMMARY

This option is used to define the field summary. You will first be asked whether you require a 40/80 column screen. For each column in the summary you will be prompted for the field required and the length you require to be displayed. This may be shorter or longer than the field but no more than 160 characters. You may specify up to 20 fields — if you require less, press «TAB» when prompted for the field number.

Note that an error message "SUMMARY TOO LONG" may occur because the computer would not be able to fit such a summary on the screen. If this occurs press space bar and you may then re-enter the summary format.

Once this option has been used, every time you select Option M — field summary, the summary will appear as specified. Reselect this Option N to change the summary if required.

6 Appendices

APPENDIX I — PRESET FORMATS

There are two preset formats supplied. One a Mailing list format, positioned after the program on side 1 which doubles as a demonstration file. Another, a Record collection format positioned on the reverse side of the program cassette. Both have the default filename of 'DBDATA'. To load them up use Option L. On the disk versions these formats are on one side of the disk and are named 'DBDATA' and 'DBDATA2' respectively. These formats can be used in the same way as any other format you create and can be reformatted as required.

APPENDIX II — PRINTOUT SAMPLES

RECORD 1

Name Mrs Brown

Address 24 The Green
Littleham

Town Exmouth

County Devon.

Post Code EX8 2JK

Telephone 265743

Reference MFED

Rec Name	Address1	Town	Telephone
1 Mrs Brown	24 The Green	Exmouth	265743
2 Mr Potts	68 Cedar Close	Sidmouth	45739
3 Mr Andrews	3 Queen Street	Colaton Raleigh	873402
4 Ms Bridge	5 Low Street	Newton Popple.	847282
5 Mr Bailey	10 Cornfield Road	Harpford	65857
6 Miss Ackland	26 Long Street	Sidbury	876585
7 Mrs Chesney	5 Mills Street	Newton Popple.	87653
8 Ms Town	129 Carlton Road	Sidmouth	76878
9 Mr Prince	65 Portland Road	Sidford	75327



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