

# PROTEXT

**WORD PROCESSOR**  
Cassette Disc and ROM

AMSTRAD CPC464  
CPC664 & CPC6128



# PROTEXT

## WORD PROCESSOR

Amstrad CPC464 CPC664 CPC6128

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The PROTEXT program was developed using the MAXAM assembler ROM.  
This manual was written on PROTEXT, and checked using PROSPELL.  
MAXAM and PROSPELL are both available from Arnor.

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## 1. WHAT IS WORD PROCESSING?

In its simplest form word processing is using a computer as a very sophisticated typewriter. Instead of typing a letter straight onto paper the letter is displayed on the screen as you type. Every word processor then allows you to

- (a) correct or change any part of the text
- (b) store the text on tape or disc for later use
- (c) send the text to a printer.

An ordinary typewriter effectively only allows (c) because you cannot change or store the text.

The advantages of even this simple form of word processing are enormous:

- it allows easy correction of mistakes, either immediately or at any later time.
- a number of similar documents can be produced with minimum effort.
- any number of copies can be printed without retyping the document.
- a tape or disc can be given to someone else to use or add to.

But word processing offers far more than this, and PROTEXT provides many powerful features – yet all designed to be easy to use. This manual introduces all these features gradually, so you don't need to read the entire manual right away. If you are new to word processing the best way to pick it up is to start typing and try things. Then as you need or are interested in more features you can read further in the manual.

Theoretically the manual assumes no knowledge of computers. Inevitably, though, some technical jargon is used, so a glossary is included to explain these terms in very straight-forward language (appendix 1).

There are two companion programs available from Arnor, PROMERGE (or PROMERGE PLUS) and PROSPELL, which when used in conjunction with PROTEXT, combine to provide one of the most comprehensive word processing packages available for any computer.

## 2. GETTING STARTED

### (i) **Cassette version**

First reset the computer by pressing CTRL, SHIFT, and ESC together. Insert the PROTEXT cassette.

Enter the command RUN"

Press PLAY.

The program will now be loaded.

### (ii) **Disc version**

First reset the computer by pressing CTRL, SHIFT, and ESC together. Insert the PROTEXT disc into drive A.

Enter the command RUN"DISC

The program will now be loaded. Remove the PROTEXT disc.

**WARNING:** the PROTEXT master disc should be kept write protected at all times and must NEVER be used for storing text files.

Note: Disc protection

The PROTEXT disc is supplied in protected form, and so may not be copied. The disc is guaranteed against loss of data, and will be replaced for the cost of a blank disc if necessary. If an attempt is made to copy the PROTEXT disc the message "Disc read fail" will be displayed. This is normal, and is not an indication of fault.

### (iii) **ROM version**

If you have the AD-2 cartridge refer to the separate fitting instructions to fit your PROTEXT ROM.

If you have a ROM extension board and the PROTEXT EPROM, refer to the documentation accompanying your ROM board for details of how to fit the ROM. On the CPC664 or CPC6128 PROTEXT may be fitted with ROM select number between 1 and 6 or between 8 and 15. On the CPC464 the ROM select number must be between 1 and 6. Once the ROM is fitted it is immediately and permanently available for use. The PROTEXT ROM comes with a built in check that it is functioning correctly. If there is a fault, the message "PROTEXT Checksum Error" will be displayed when the computer is switched on. In most cases this is an indication of faulty hardware and not a faulty ROM and so you should contact the supplier of your ROM board.

If PROMERGE PLUS extension ROM is fitted, this must have a lower ROM select number than PROTEXT.

Note: the PROTEXT ROM should be kept permanently installed and this will not normally affect other programs. However, there are some programs that require all of the computer's memory to run. In these cases enter the command |ROMON7 before running the program. This will turn off the PROTEXT ROM (and any other ROMs as well, except for the BASIC and Disc ROMs).

## Running PROTEXT

To use PROTEXT simply enter the command |P (or |PROTEXT). This will select 80 column display. The use of 80 column display is recommended. PROTEXT also works in 40 column mode, though: enter the command |P,1 to select 40 column mode.

Users of the colour screen may find the display hard to read in 80 columns. The command |CP can be used instead. This enters PROTEXT, and changes the colours so the display is clearer to read. The disc version also gives the option to change colours when the program is loaded. The message 'Colour screen (y/n)?' will appear. Press Y to change the colours, any other key to leave them as they are.

The " | " symbol is produced by holding down SHIFT and pressing @. Thus to enter PROTEXT type the sequence SHIFT and @, followed by P, followed by RETURN (or ENTER).

## Note for CPC464 and CPC664 users

The CPC6128 keyboard is different from the CPC464 and CPC664 keyboards. Wherever this manual refers to the RETURN key, it means the large ENTER key on the CPC464 and CPC664.

## Conventions used in the Manual

Throughout the manual, editing commands are written in the form CTRL-Q or CTRL-COPY. When you see commands in this form, it means you should hold down the CTRL key and then press the appropriate key. This does NOT mean you should use CTRL and shifted key 8 when you see commands like CTRL-(, the ' ( ' merely being used for ease of remembering its function. At no time should it be necessary to press more than two keys at any one time.

Commands used in Command mode are shown in upper case, as in 'PRINT' or 'SAVE', but may actually be entered in either upper or lower case.

## Upgrading

Cassette and disc versions can be upgraded to the ROM version of PROTEXT at a special discount price by returning the cassette or disc in part exchange. The cassette version can also be upgraded to disc — it may not be transferred to disc. Contact Anor for the current price for this mail order service.

## Further software

There are a number of programs that can be used with PROTEXT, giving many extra facilities, including a spelling checker (PROSPELL), mail-merge and other advanced word processing functions (PROMERGE and PROMERGE PLUS). Details are available from Anor.

### 3. ENTERING AND CORRECTING TEXT

Having followed the instructions of the previous section you should now be ready to start word processing. At the top of the screen you will see 3 lines with various information displayed. These are the status lines. Don't worry about them yet though — it will all be explained later. You will also see a horizontal line. This marks the end of the text. About two-thirds of the way down the screen you should see the following:

Text size 0      PROTEXT (c) Arnor 1985      Type HELP for Command Summary

At this point you are in Command Mode, which is described in detail in a later chapter, but for now just press the ESC key. This will put you into Edit Mode, which is the mode used for all entry and correction of text. You will notice that the line two thirds of the way down the screen has now disappeared.

#### On screen help

You will also notice at the right of the status line the message 'CTRL-H for Help'. Typing CTRL-H whilst in Edit mode causes two lines to be displayed at the bottom of the screen summarising some of the most useful commands. In the summary the CONTROL key is shown as '↑' and the SHIFT key as 's'. Typing CTRL-H again removes the lines. This is the first example of a 'toggle' command — meaning that the same command is used to turn a feature on and off. Several more toggle commands will be described later.

#### The cursor

Just below the status lines you will see a flashing cursor. Whatever you type will appear on the screen at the cursor position. Try it by pressing a few keys — each time you press a key the appropriate symbol is displayed on the screen and the cursor moves along one position.

Practise entering text by copying a paragraph out of this manual. You do not need to press RETURN at all, just type the words as you see them. You will notice that when you reach the end of a line the cursor will automatically move onto the next line for you. At the end of a paragraph, press RETURN (or ENTER).

If you make a mistake while typing and you notice it straight away, press DEL. This will cancel the last key pressed.

The cursor can be moved anywhere on the screen by pressing the four cursor keys (those with arrows on them). By using these keys you can type text at any position on the screen. The cursor moves one line or column for each press of a cursor key. To move quickly hold a cursor key down and the cursor will move continuously; release the key and the cursor will stop.

You will see that the cursor cannot be moved past the end of text (that is the horizontal line on the screen). To position the cursor further down, the end of text must be moved down. Do this by moving the cursor to the end of the text and then pressing RETURN as many times as required.

## Deleting and inserting

This ability to move the cursor around allows the correction or alteration of text anywhere on the screen. Try this on the text you have typed in. Move the cursor so that it is positioned on a letter you want to change, and press CLR. This will remove the letter at the cursor position, and move the rest of the line to the left. Now press the new letter — it will appear on the screen and the rest of the line will move back to the right.

You can delete and insert as many letters as you want in this way. Simply move the cursor to the position where the letters are to be inserted, and type them.

To insert a new line use CTRL-I. The cursor will remain where it is and all text from the current line will be moved down.

To delete a line use CTRL-CLR. The current line of text will disappear, the cursor will remain where it is and the rest of the text will all move up a line. There is a related command CTRL-E. This deletes everything from the cursor position to the end of the line.

## Insert and Overwrite mode

When you start using PROTEXT you will see the word 'Insert' displayed at the top of the screen, indicating that PROTEXT is in 'Insert mode'. This means that when text is typed, the rest of the line is moved along to the right to make room.

Now press TAB while holding down the CTRL key. The display will change to 'Overwrite'. You have now selected 'Overwrite mode'. Place the cursor on some existing text and type. You will see that the old text disappears, overwritten by the new text. Selecting overwrite mode can make certain editing jobs easier. If you need to insert the odd character while using overwrite mode (for example if replacing a word by a longer word), this can easily be done. Press CTRL and the space bar and the text will move to the right to make room.

Pressing CTRL-TAB causes PROTEXT to switch between insert and overwrite modes. The current mode is always displayed on the status line.

Experiment with the two different modes, to see the different results obtained, before returning to insert mode.

## Word operations

We have seen how to move a character at a time by pressing the cursor keys. Now press ← or → at the same time as holding down one of the SHIFT keys. The cursor will jump a word and be positioned at the start of a word. This feature is useful for moving more quickly to a word you need to correct.

Just as you can delete a character, you can also delete a word. Press SHIFT and CLR when the cursor is at the start of a word and the word will disappear. If you do this when the cursor is in the middle of a word, only the letters at and to the right of the cursor position will be deleted.

## Upper and lower case

Initially the letter keys produce lower case letters, unless SHIFT is pressed at the same time. If you press CAPS LOCK, upper case letters are always produced, and this is indicated on the status line. Pressing CTRL and CAPS LOCK selects 'Shift Lock', and the status line will show this. Shift Lock has very little practical use.

There are two commands which change the case of a letter. To make a letter upper case, press CTRL-/ when the cursor is on the letter. To make a letter lower case, press CTRL-\ . These commands only affect letters, so you can move the cursor quickly over a line to convert all letters to upper case (by holding down the CTRL and ' / ' keys).

## Scrolling

When the text fills the entire depth of the screen, typing more will cause the screen to scroll up. That is, the top line will disappear and the rest of the screen will move up one line to make room for a new line at the bottom of the screen.

In the same way the text will scroll if the cursor reaches the bottom of the screen but there is more text to come, or reaches the top of the screen when the text has previously scrolled. This is known as vertical scrolling, and is essential for editing text that is longer than a few lines.

PROTEXT has a command to force the screen to scroll either up or down. To do this press ↑ or ↓ while holding down SHIFT. The cursor will stay on the same line, but the whole text will scroll by one line. This feature is useful if you want to edit the line you are on but also want to see some lines further up or down the text.

There is another form of scrolling, called horizontal scrolling, which happens automatically if you try to move the cursor beyond the right hand limit of the screen. If you do this the text will scroll to the left. That means that the left half of the screen will disappear, the right half of the screen will move to the left, leaving the right half of the screen blank. Horizontal scrolling allows text to be entered in lines that are longer than the screen width. This can be confusing and so is best avoided at first. If horizontal scrolling occurs you can use any of the commands which move the cursor to the left, or press SHIFT and RETURN together and the screen will scroll back.



### Moving the cursor more rapidly

So far we have seen that the cursor can be moved by a character or by a word. There are also various ways to move the cursor more quickly. These are as follows:

(a) Pressing CTRL-← or CTRL-→ . This moves the cursor to the beginning or end of the line.

(b) Pressing SHIFT-RETURN or CTRL-RETURN. This moves the cursor to the beginning of the next line, without causing a new line to be inserted, which would happen if you used the RETURN key on its own.

(c) Pressing CTRL-↑ or CTRL-↓ . This moves the cursor up or down 20 lines. By holding down CTRL-↑ or CTRL-↓ you can rapidly scan the text. The text will scroll by nearly a screenful at a time, but with a few lines overlap so you can see where you are. The same functions are performed by CTRL-Q and CTRL-W, which is more convenient on the CPC6128 keyboard.

(d) Pressing CTRL- [ or CTRL- ] moves the cursor to the beginning or end of the text.

(e) Pressing CTRL- < or CTRL- > moves the cursor by a paragraph at a time.

(f) Pressing CTRL - ( or CTRL- ) moves the cursor by a page at a time.

(g) Pressing CTRL- £ moves the cursor to the top left of the screen.

(h) Pressing CTRL- L moves the cursor back to the last position. This is useful if you have accidentally moved the cursor away from the place you are editing.

### Splitting and joining lines

Often you will want to split a line in two or join two lines. This is very easy in PROTEXT. There are two different methods of doing this, depending on whether you are in 'Insert' or 'Overwrite' mode.

To split a line whilst in Insert mode, move to the character you want to be the first on the new line and press RETURN. To join two lines, either move to the end of the first line and press CLR, or move to the start of the second line and press DEL.

If you are in overwrite mode, use CTRL- \* to split the line at the cursor, and CTRL- + to join the next line to the end of the current line. Leading tabs and spaces on the second line are deleted (i.e. tabs and spaces appearing before any other characters).

## 4. COMMAND MODE

This section introduces the remaining commands necessary to enable you to use PROTEXT in a simple fashion. So far, all the entry of text has been carried out in Edit mode, but in order to carry out operations such as saving, loading or printing, it is necessary to go into Command mode. This is simply done by pressing ESC. Pressing ESC again puts you back in edit mode.

When you press ESC, the bottom part of the screen will be cleared, and the title line will appear, which shows the size of the text in bytes. The cursor will be positioned next to a '>' symbol. This symbol is the 'command prompt' and indicates that commands may be entered.

The output of all commands will be displayed in this window at the bottom of the screen. Some commands produce more output than will fit in this window, so you will want to clear the whole screen. This can be done by pressing the CLR key. The command 'CAT' is an exception to this, since the screen will automatically scroll so that you can see the complete listing of files together.

### Command entry

PROTEXT has a special feature which permits the entry of commands in a simplified fashion. For example, to save a text file it is only necessary to type 'SAVE' and PROTEXT will prompt you with 'SAVE filename: ' and wait for you to enter a name for the text file. Alternatively, you can type the parameters of a command on the same line as the command name, e.g. 'LOAD report', 'SAVE letter'. In this way you can use the commands without the prompts for the parameters appearing, which is often more convenient once you are familiar with the commands.

### Abbreviations

Many commands can be abbreviated. For example, there is no need to type 'LOAD' in full, you can just type 'L'. Similarly 'S' for SAVE and 'P' for 'PRINT'. The full list of commands and abbreviations is given in appendix 3 (c) at the end of this manual.

### Saving text

Once you have entered some text you will want to store it on tape or disc. To do this make sure you are in command mode, type the word 'SAVE', then press RETURN. The screen will display the message 'SAVE filename:'. Choose a name for your text and type in the name. The text will then be saved on tape or disc using your chosen name. The text name can contain up to 8 letters and numbers. These may optionally be followed by a full stop and an extension of up to 3 characters. On cassette the name may contain up to 16 characters.

**Important notes:**

(i) The need to save your text regularly cannot be stressed too highly. Accidents can happen at any time and it's obviously better to lose ten minutes' work than an hour's

(ii) Users of the disc or cassette versions of PROTEXT should NEVER save any text on the PROTEXT disc or cassette — ALWAYS use another disc or cassette.

(iii) Keep at least two copies of every file, preferably at least three, on separate discs or cassettes. It is too easy to accidentally delete a file to risk not keeping backup copies. Even if you never make a mistake (which is impossible) the disc or cassette could become damaged and your valuable files could be destroyed.

(iv) Disc users only. Whenever you save a file using the name of a file that already exists, a backup file will be created on the disc. The backup file will have the same name except that the extension ' .BAK ' will be added. There are two occasions when you should be aware of backup files.

The first is if you accidentally wipe out a file on disc by saving a different file with the same name. You can recover the old file by loading in the backup file (use ' CAT ' to see if there is a backup file on the disc), and saving using the correct name. If you have saved the new file twice, then you cannot recover the original file since the backup file will have been changed as well.

The other situation when you will notice backup files is when you get a 'Disc full ' error message. The disc will probably be half full of backup files which you no longer require (because you will have a backup on another disc). If this is the case, enter the command ERA \*.BAK to delete all the backup files and make room on the disc to save your text.

**Loading text**

Having saved some text you can then recover it from the tape or disc at any time. Enter the command 'LOAD' and type in the same name that you used to save the file. (Tape users can omit the filename if the tape is positioned at the start of the required file). The text will be loaded and the first few lines of the text displayed. Press ESC to return to edit mode to alter or add to the text.

If there is insufficient memory to load the file a beep will sound, and an error message will be printed. As much of the file as possible will be loaded in and you can press ESC to edit it.

Note: if you have files that were originally produced by another word processor then please refer to chapter 14.

**The current filename**

After you load a file, or once you have saved a piece of text you will see the name of the file displayed on the status line. This now becomes the 'current filename' and is remembered by PROTEXT until you change it. Once a file possesses a current filename the name may be omitted when saving a file. Enter the SAVE command, and when the prompt 'SAVE filename: ' appears just press RETURN. The text will then be saved using the current filename. Take care that it is indeed the correct name so you don't accidentally erase something else.

There are two ways to change the current filename — by loading a new file, or by saving the text under a different name.

## Printing text

The next thing you will want to do (if you have a printer) is to print a copy of your text. If you have created a piece of text and are in edit mode, press ESC to select command mode, otherwise load in a text file, then enter the command 'PRINT'. There are many options you can use with the PRINT command but for now you can ignore them all — the text will be printed as it appears on the screen.

If nothing happens check that the printer is correctly connected to the computer and switched on. If it is, and still nothing happens, then the printer is probably not ready. This almost always means that you need to press the button on the printer marked 'On line'.

## Other commands

The following list is not a full list of the available commands, but covers the majority of the most commonly used commands. Other commands will be introduced at the appropriate place in the manual and a full list can be found in appendix 3 (c), complete with abbreviations where applicable.

HELP	The command HELP will produce a complete list of the commands available from command mode, with their abbreviations.
MERGE	This is similar to LOAD but whereas LOAD clears out any existing text and then loads the file in, MERGE inserts the new file at the current cursor position. Notice that when you switch between edit and command mode the cursor always returns to the same position in edit mode, so it makes sense to refer to the cursor position even if you are in command mode.
SAVEB	This is the same as SAVE except that the whole text is not saved, just the text within the block defined by block markers (see chapter 5).
PRINTB	Similarly, PRINTB prints just the text defined by the block markers (see chapter 5).
CAT	This will catalogue the files on tape or disc, so can be used to check that a file has been saved correctly, and to see what files you have previously saved.
MODE	Changes the screen display mode: MODE 2 selects 80 column display, MODE 1 selects 40 column display.
COUNT	This command will count the number of words in the text, excluding stored command lines (see chapter 11).
COUNTB	As COUNT, but only counts words in the current block (see chapter 5).
CLEAR	Deletes the entire text and resets some features.
SPEED	Cassette users only. Set the cassette write speed. SPEED 0 to set 1000 baud, and SPEED 1 to set 2000 baud.
VERSION	Displays the PROTEXT version number. Quote this in any correspondence about PROTEXT.
QUIT	Quits PROTEXT and returns to the calling program (usually BASIC).

## External commands

External commands are commands provided by other programs, either in ROM or RAM. RAM based programs that provide external commands are called resident system extensions (RSXs). Any of these commands may be used from PROTEXT command mode. The command names can be prefixed with a vertical bar ( ' | ' ) as in BASIC, but it is optional – you can just type the command name. Parameters can be typed in ' free format '. This means that parameters can be separated by spaces, tabs or commas (or even equals signs). Numbers can be decimal or hexadecimal (if prefixed by ' & ' ). String parameters need not be enclosed in quotes, unless the first character of the string is a decimal digit or the string includes a space, tab, comma, semicolon or equals sign.

If an external command has the same name as one of the built in PROTEXT commands (e.g. FORMAT, HELP, LOAD) it must be prefixed by a vertical bar to execute the external command rather than the PROTEXT command.

The most common use of PROTEXT's external command handler is to enter disc commands. This is much easier than it is from BASIC, where a strict syntax must be followed (parameters separated by commas, string enclosed in quotes). There follow some examples of using external commands in PROTEXT:

era letter	delete a file
era *.bak	delete all backup files
ren newname=oldname	rename a file

## 5. CUT AND PASTE EDITING

This is where real word processing begins. PROTEXT allows you to move or copy any section of text. This is often called 'cut and paste' editing.

### Defining a block

The first thing to do is to define a block of text. Move to the start of the section of text and press SHIFT-COPY. This will set a block marker. The marker will be indicated on the screen by an inverse video square bracket. Now move to the end of the section and press SHIFT-COPY again. A second marker will be set. The block is now defined. An opening square bracket is the start marker, a closing square bracket the end marker. When you define markers this will be indicated on the status line, where the message 'No markers set' will change to 'Markers [ ]', showing that both the start and end marker are set.

The markers can be set in either order, and can be at any position in the text. The first marker you set will be displayed as an opening bracket, but if you then set the other marker before the first it will change to a closing bracket. If you put the marker in the wrong place, press SHIFT-COPY again while the cursor is still on the marker and the marker will be removed. To clear both block markers press CTRL-K.

Often a block will be a number of complete lines. To define a block like this set the first marker at the start of the first line, and the second marker at the start of the line after the last line of the block.

If you try to set a marker when both are already set, a beep will sound and an error message will be displayed on the status line. Press ESC to resume editing and then CTRL-K to clear the markers.

### Moving or copying a block

Once a block has been defined, it can be moved to any point in the text. Simply move the cursor to the required position and press CTRL-M. The markers will move with the text. The cursor must not be within the block at the time — if it is an error message will be displayed on the status line. To resume press ESC and move the cursor to the correct position. Note that there must be sufficient free memory for a copy of the block being moved.

The block can also be copied, leaving the original copy as it is. This is done by pressing CTRL-COPY. The markers will be moved with the block. This enables you to see clearly where the new copy of the block is, and to copy the block again if required. Again the cursor must not be within the block.

### Deleting a block

To delete a section of text define a block in the usual way and press CTRL-DEL. A beep will sound and a warning message will be displayed on the status line, and you will be asked to confirm whether you want to delete the block. The block will only be deleted if you press Y.

## 6. RULERS, TABS AND MARGINS

A ruler is a special line that marks out the margins and tabs. Margins are the left and right hand limits of the text, whilst tabs are markers used to position text in set columns on the screen and are particularly useful for lining up columns of words or numbers. Tabs work in a very similar fashion to those of a typewriter, but in a much more flexible fashion. The third line at the top of the screen is the 'current ruler line', which displays tabs and margins.

### Ruler lines

At all times the ruler at the top of the screen is the one applicable to the line that the cursor is on. Initially you will see the default ruler displayed at the top of the screen, beneath the status lines. Each '!' on the ruler marks a tab position and the 'L' and 'R' indicate the left and right margins.

You can create new ruler lines to suit the layout you require. This is done by typing the new ruler lines as you would a line of text. The line must have a 'greater than' symbol (>) in the first column. You do not need to type in the hyphens (-) along the line. Simply type in the '!' wherever you want a tab and the point '.' wherever you want a decimal tab.

You can have any number of ruler lines in the text — each applies to the text from the line beneath to the next ruler line (or the end of the text if there are no more ruler lines). When the cursor is moved past a ruler line, in either direction, the ruler will immediately replace the current ruler at the top of the screen. If the cursor is moved above the first ruler line in the text, the default ruler will be restored.

Ruler lines allow you to format the text in any way you choose — just change the ruler line and use the CTRL-F command. If you have tabulated text by inserting tab characters, changing the ruler line will cause the text to be re-formatted immediately using the new ruler line. Thus it is easy to move columns about or experiment with different formats to decide which is best.

There are three further commands connected with rulers. The first will copy the current ruler to the current line. This is useful for setting up a new ruler line that has only a few changes — it avoids the need to type the whole line. When the line has been copied you can just edit it as required by adding or removing tabs, etc. To copy the current ruler type CTRL-R. There is a similar command (CTRL-D) to copy the default ruler (left margin 1, tabs every 8, right margin 70) to the current line.

The final ruler command is CTRL-O. This turns off the ruler display at the top. This gives an extra line of text if the ruler is not being used.

Note that the default ruler is restored by the commands LOAD and CLEAR.

## Tabs

PROTEXT has two types of tabs, the normal 'tab' and the 'decimal tab' and these are inserted into a ruler line by just typing in an exclamation mark (!) where you want a normal tab marker, or a point (.) where you want a decimal tab marker. You may have as many of either tab as you want on each ruler line.

### Normal Tabs

Each '!' on the ruler line marks a tab position. Pressing the TAB key will move the cursor to the next of these positions.

If insert mode is selected, spaces will be inserted in the line. Pressing DEL immediately after TAB will then remove all the spaces and move the cursor back to its previous position. This happens because when you press TAB (in insert mode) a special tab character is stored in the text. This character can be thought of as occupying several columns on a line, since the cursor cannot be moved within these columns. The cursor will jump over a tab character if moved onto it. The main use of tabs is for aligning text or numbers in columns, and PROTEXT allows you to set tabs at any positions in the line (and as many as you like).

Pressing SHIFT-TAB will move the cursor to the next tab position and will not insert a tab character. If overwrite mode is selected, the functions of TAB and SHIFT-TAB are reversed.

Note: do not press TAB when the cursor is on a ruler line since this will cause your tabs to be set wrongly.

### Decimal Tabs

This is a special form of tab which can be used in a number of ways. It permits you to align numbers so that the decimal points line up automatically. Any numbers that you enter after pressing TAB to take you to a decimal tab will be automatically shunted to the left of the tab position until you enter the decimal point (.), after which any further numbers will be placed to the right. If you do not enter a decimal point (as for a whole number) and then press TAB again, the number will be right justified in such a way that units, tens, hundreds etc. all line up.

This tab can also be used with words, in which case they will all be lined up in such a way that the end of the words are all in line. This can be very useful for entry of words like 'Total' and 'Subtotal' in conjunction with columns of figures.

### The right margin as a decimal tab

The right margin (denoted by 'R' on the ruler line) also acts as a decimal tab. If TAB is pressed when the cursor is to the right of all tab markers, it will be moved to the column one to the right of the margin. Any text typed now is right-justified at the margin. For example the address on a letter may be usefully entered in this way. Note that there must be sufficient room between the last tab and the margin for the text that is to be entered.



## Margins

The ruler line is also used to define margins. These are indicated by 'L' for left margin, and 'R' for right margin. These define the part of the screen within which text will be formatted. Initially the left margin will be at column 1 and the right margin at column 70, but they can be set just like tabs at any position (though of course the right margin must be to the right of the left margin!). To set margins create a ruler line as above, move the cursor to the column at which you want to set the left margin, and type L. Then move along to your chosen right margin column and type R. If you want to leave the left margin at column 1 then do not put an 'L' anywhere. To see the effect of changing margins type a new ruler line above a paragraph of text with, for example, a left margin at column 5 and a right margin at 60. To help you here, look at the top status line and you will see the current column number displayed. Now format the paragraph (CTRL-F) and it will be rearranged to fit within the new margins.

### Left margins and tabs — applications

#### 1. Indentation of the first line of a paragraph

This is best done by setting a tab position at the column to which you want the text to be indented. Then at the start of each paragraph, press TAB and then start typing the text. It is very easy to indent the text if you only decide to do so later — just move the cursor to the start of the paragraph, press TAB, and then CTRL-F to re-format the paragraph.

Example: a ruler line to give 60 column wide text with a tab at column 5 for indenting the first line of the paragraph.

```
> ---|-----R
```

#### 2. Indentation of a section of text

The main use of left margins is for indentation of a section of text. When RETURN (or SHIFT-RETURN or CTRL-RETURN) is pressed the cursor moves to the left margin, so by setting a left margin text can be automatically indented.

A left margin should not be used to indent the whole text, that is if you want to leave part of the paper completely blank. This should be accomplished by using the 'side margin' stored command (See chapter 11).

#### 3. Marginal comments

When the text is formatted with the 'FORMAT' command any text that is within the left margin, i.e. to the left of the left margin setting, is unaffected. This means that the left margin can be used to include marginal comments with the text. To type a comment in the margin use CTRL-← to move the cursor to column 1. Tabs are allowed within the margin, for example the following ruler line may be useful for numbering indented paragraphs:

```
> ---|---L-----R
```

- 1 . First paragraph.
- 2 . Second paragraph.

## 7. FORMATTING

Formatting is the process which determines the layout of the text and takes two forms, automatic formatting and manual re-formatting.

### Automatic Formatting

There are two main items which determine the final appearance of the document and take place automatically as the text is entered.

#### Word-Wrap

You will already have noticed that when you have typed a line of text, the cursor moves on to the next line, and the word you are in the middle of is also moved on to the next line. This operation is called 'word-wrap'. The status line will indicate that word-wrap is working. CTRL-W toggles word-wrap on and off and the status line will change to indicate this. Set word-wrap to 'off' and type a line of text and you will see that the cursor stays on the same line until you press RETURN. When you reach the edge of the screen the display will scroll sideways. Press CTRL-W to turn word wrap back on again.

#### Right-Justification

You will probably have noticed that all text you have typed appears with a straight right hand edge, like a book. This occurs by default and the status line will indicate that right-justification is in operation.

PROTEXT lines up the right hand edge for you by automatically spreading out the words in a line. To turn off the right-justification you should type CTRL-J, and you will notice the status line change to tell you it is off. Type a paragraph and you will now find that the right hand edge is 'ragged', as if typed on a typewriter.

### Manual Re-formatting

If, for any reason, you have altered a line, deleted some text, or moved or copied a block of text, almost certainly the formatting of the text will have been spoilt. There are two methods of correcting this.

#### Edit Mode Formatting

If you destroy the format of just a small part of the text, it is easiest to re-format small areas of text whilst you are still in edit mode. All that you have to do is position the cursor on the first line that requires re-formatting and use the format paragraph command CTRL-F, which will cause the remainder of the paragraph to be re-formatted according to the justification and word wrap settings. A very useful sequence is CTRL-< CTRL-F, which will move the cursor to the start of a paragraph and then re-format the whole paragraph.

## Command Mode Formatting.

If you find that considerable areas have been disrupted, or you decide to alter the number of characters on a line (See chapter on Tabs and Margins), the simplest way to re-format is to exit from Edit mode using ESC and then to type in the command `FORMAT`. This will automatically re-format the text, from start to finish, in one go.

A variation of this command is `FORMATB`, which will format the part of the document selected with the Block markers (See Cut and Paste Editing), but will continue past the end of the block marker to the end of the paragraph.

## Centring text

It is very useful to be able to position text, such as title, exactly centred on the line. To do this, move the cursor to the line in question and press `CTRL-C`. The cursor will be moved to the left margin of the next line.

If you re-format the file with a different text width (as explained in the next section), the line will no longer be centred. To ensure that the line is correctly centred type the three characters '`>CE`' in the first three columns of the line. This is the first example of a 'stored command' – a command that is put into the text to be used at some later time (in this case when the `FORMAT` command is used).

## 8. FIND AND REPLACE

These two commands will search through the text for any string of characters and REPLACE will allow you to replace the string with a second string.

The commands are entered from command mode and, like all PROTEXT commands, prompt you for the required parameters. You will first be asked to enter the string you wish to find, and then, if replacing, to enter the new string. After entering the string or strings you will be asked if you want any options. Each option has a single letter abbreviation (these are listed on the screen). You can choose one or more options by typing the option letters on the same line (in any order). To select no options, just press RETURN. The options available are as follows:

- G Global search. If selected the whole text is searched, otherwise only the text from the current cursor position.
- C Case specific search. If selected all letters will only match letters that are the same case, otherwise either capitals or lower case letters will do.
- W Find string only if it appears as a complete word.
- B Search backwards.
- A Replace all strings without asking for confirmation.
- n Find the nth occurrence. Replace n by the required number between 1 and 255.

If no options are selected the search will be forwards, from the current cursor position to the first occurrence of the string, ignoring the case of letters, finding the string even if it occurs as part of a longer word, and asking for confirmation before replacing a string.

Any number of wildcards are allowed in the string. A wildcard is a character that matches any character in the text, except the return character. It is entered in the string by typing a question mark ( ? ).

A tab character may be entered simply by pressing the TAB key. It is displayed as a right pointing arrow.

There are various characters that cannot be entered directly, but that it may be useful to include in a search string. These include return characters and printer control codes. A mechanism is provided for including these in a string. An 'escape character' ( ! ) is typed, followed by a symbol. Thus to search for a printer control code, type !, followed by the code letter. The full list of characters that are entered by this means is:

printer control code	! < letter >	
question mark	! ?	
exclamation mark	! !	
return	! .	(see chapter 9)
soft hyphen	! -	(see chapter 9)
non-break space	! < space >	(see chapter 9)

## Using FIND

When the string is found, edit mode is entered and the cursor is placed on the first character of the string. Press COPY to find the next occurrence of the string. COPY need not be pressed immediately, you can do some editing first and later move to the next find.

As with other commands FIND can be used by typing the string on the same line as the command name, followed by any options. If no options are given the default options will be used. Thus the command 'FIND word' will search for the string 'word' from the current cursor position.

## Using REPLACE

If option A is selected then all occurrences of the string are replaced and you remain in command mode. Otherwise the cursor is positioned on the first character of the string and a message 'Replace (y/n)? ' is displayed on the status line. Press Y to replace and move to the next find, N to leave the string as it is and move to the next find, or ESC to resume editing. You can later press COPY to resume the find and replace operation.

## Examples

1. To find all occurrences of the word 'text' in lower case only, starting at the cursor position.  
FIND string: text  
Options: CW
2. To convert all occurrences of 'rom' or 'Rom' to 'ROM', asking for confirmation of each replacement.  
FIND string: rom  
REPLACE with: ROM  
Options: GW
3. To find the 12th 8 letter word.  
FIND string: ????????  
Options: WG12
4. To replace all underline codes by bold (emphasised) codes.  
FIND string: !u  
REPLACE with: !b  
Options: AG

## A useful tip

The find and replace commands open up a whole range of ways of making word processing easier. It is not possible to list them all here, but one example should set you thinking on the right lines.

Suppose you are writing a letter in which the phrase 'word processor' appears many times. You can save typing time by typing a single character ( say '@ ' ) for each occurrence of 'word processor' and then use the REPLACE command as follows:

FIND string: @  
REPLACE with: word processor

Use FORMAT to re-format the letter and the job will be complete even though you only need to type 'word processor' once.

## 9. MISCELLANEOUS COMMANDS

### Soft spaces, returns and hyphens

Soft characters are used by PROTEXT for formatting. When a paragraph is right-justified, spaces are inserted in the line. These spaces are treated differently to spaces inserted by pressing the space bar (these are called hard spaces). Hard spaces can never be removed by formatting, but soft spaces can.

There is a similar distinction between a hard and soft return (end of line). A hard return occurs where the RETURN key has been pressed, and this marks the end of the paragraph. A soft return occurs where the action of word-wrap has caused a new line to be started. Like soft spaces, soft returns can be removed by formatting.

When searching for a string, soft characters are ignored, so that if a soft space has been inserted between two words by the formatter, the search will still succeed.

A soft hyphen is slightly different in that it must be explicitly entered by pressing CTRL and hyphen. It will be displayed in inverse video. Soft hyphens can be inserted at points in a word where hyphenation is permissible. The formatter will then split a word at a soft hyphen and display a hyphen instead of moving the whole word onto the next line. A soft hyphen will only be printed on the printer if it is at the end of a line, i.e. where the formatter has split the word. This feature is especially useful if there is a long word that is just too long to fit on the end of the line.

### Non-break spaces

When the text is formatted it can result in there being several spaces where you only typed one. This is sometimes undesirable, so PROTEXT lets you enter 'non-break spaces' which are not affected by formatting. To enter a non-break space press CTRL-N. It will be displayed as a half-shaded, half-solid pattern so it can be distinguished from a normal space.

Examples of use:

1. The space between ' Mr ' and ' A ' in ' Mr A. Smith ' . This would look wrong if displayed as 'Mr A. Smith' , so press CTRL-N after ' Mr ' instead of pressing the space bar.

2. A string enclosed in quotes, that must be printed exactly as it was typed, e.g. ' T h i s s e n t e n c e i s s p a c e d o u t ' .

### Viewing the text without control codes

Control codes of various kinds are usually displayed in the text in inverse video. This means that the formatting of the text (tabs, right-justification, etc.) may be unclear. To view the text without any control codes type the command CTRL-V (and CTRL-V to replace them). The control codes affected by CTRL-V are as follows:

Printer control codes ( a - z ), block markers ( [ , ] ), position markers ( 0 - 9 ), non-break spaces, and soft hyphens.

### **Viewing the text with tabs, returns, hard spaces**

The command CTRL-T toggles the display of tab characters and hard returns. Tabs and returns are shown by their Amstrad symbol in inverse video.

The command CTRL-S allows you to tell the difference between hard and soft spaces. When CTRL-S is pressed, all hard spaces will be shown as a shaded pattern. Pressing CTRL-S again restores the display to normal.

These options enable you to see exactly where you have typed these characters and where formatting has inserted soft spaces and returns.

### **Place markers**

A place marker can be put anywhere in the text and is similar in use to a book marker. It enables you to find your place after moving to another part of the text. Ten place markers can be set, numbered 0 to 9. To set one type CTRL-@ followed by the number. When you set a marker it will be shown on the status line, so by looking at the status line you can see which markers are available. Once a marker has been set, repeating the CTRL-@ command with the same number will cause the cursor to be moved to the marker.

As an example of use of a place marker, suppose you are editing a long file and you think of something to be added at the top of the text. You can set a place marker, type CTRL- [ to move to the top of the text, and after making the addition move back to the place marker.

In addition to moving to and setting place markers, CTRL-@ allows you to move to a block marker (type CTRL-@ followed by [ or ] ), and to the left and right margins on the current line (type CTRL-@ followed by L or R). Note that there is a difference between using CTRL-@ and L or R and CTRL with the left or right cursor arrows.

### **Moving to a specified line number**

Press CTRL-G to go to a specified line number. The message 'GOTO line: ' will appear on the status line. Enter the line number followed by RETURN and the cursor will move to this line. This line number is the position of the line in the text, the first line being line 1.

Note: the line number used by this command may be different to the line number displayed on the status line, which takes stored commands into account. Type CTRL-P and the status line display will then match the line number used by CTRL-G.

### Swapping two characters

A common typing mistake, especially when typing quickly, is to type two letters the wrong way round, e.g. 'wrod' instead of 'word'. The CTRL-A (alternate characters) command will put this right. Position the cursor on the first of the two offending characters (in the above example on the ' r ') and type CTRL-A. The two characters will then be swapped over.

### Using PROTEXT in mode 1

PROTEXT is best used in 80 column mode (mode 2) on a high resolution monochrome monitor. But since this is not available to everyone, PROTEXT will also work in 40 column mode (mode 1). Use in mode 1 is different in the following ways:

1. Since the default ruler is 70 characters wide it can not all be displayed on the screen, so the text will scroll sideways when column 41 is reached.
2. Page mode does not operate.
3. The status line is abbreviated. The editing mode is denoted by the abbreviations ' Doc ' and ' Prog '. The filename is not shown (but is still remembered and used by the SAVE command). The toggle settings are abbreviated to W (Word-Wrap on), J (Right-Justify on), I (Insert mode) and O (Overwrite mode). Caps Lock is indicated by C, and Shift Lock by S. Markers are not shown.



## 10. PRINTING OPTIONS

So far you have only briefly met the PRINT command, which by default prints the text leaving small margins at the top, bottom and sides of every page – you have had no control over the printed output. This chapter describes one way of changing the default printing options, the next chapter gives a different method (stored commands), which is more flexible.

### PRINTS

This command allows you to view the text as it will be sent to the printer, output being sent to the screen instead. This is a very convenient method of checking that page breaks fall in sensible places, columns of figures appear correctly etc. Pressing ESC once will pause the printing, then a second press of ESC will abort printing, or any other key will let it continue. PRINTS may be abbreviated to PS.

### PRINTF

This command works in a similar way to PRINTS, the difference being that it sends output to a disc file. The uses of this are discussed in a later chapter. PRINTF may be abbreviated to PF.

All three versions of the print command have an equivalent command that prints only a block of text, marked with the 'block markers' ( ' [ ' and ' ] ' ). These are PRINTB, PRINTSB and PRINTFB, and are very useful for printing a section of the text.

### Default printing options

When you first load the program, it is provided with a default set of values for a number of printing options. If you wish you may alter these at any time and you can save them in a file, to load at any future date.

Enter the command SETPRINT from command mode and then press Y in answer to the question 'Set print options (Y/N) ?' and you will see the following list of options. The values displayed are the default settings. Each may be changed by typing a new value, or left the same by pressing RETURN. Press ESC when you have no more options to change.

Continuous printing	YES
Near letter quality	NO
New page after print	YES
Start page number	1
End page number	65535
Number of copies	1
Page length	66
Line spacing	1
Top margin	3
Header margin	2
Footer margin	2
Bottom margin	3
Side margin	5
Page number at top	NO
Page number at bottom	NO
Form feeds enabled	NO

### **Continuous printing and single sheets**

One very important function is the ability to choose between printing continuously or on individual sheets. The final printout is often required on high quality sheets of paper, but copies for proof reading can be printed on continuous stationery to save time. Particularly when printing on single sheets, it is useful to be able to print only certain pages from the text. At the start of each new printed page the message 'Press SPACE to print' will be displayed. Pressing any other key will skip over that page and proceed to the next page — this is the easiest method of ignoring unwanted pages.

### **Near letter quality**

If your printer is EPSON-compatible and is capable of producing NLQ output then selecting this option will print your text in NLQ mode. If your printer supports NLQ but is not EPSON-compatible you must first change the 'q' control code (explained later, in chapter 12).

### **New page after print**

This option is initially set to 'Y', and causes the paper to be fed through to the end of the last page. If this is changed to 'N', the printer will stop as soon as the last line of text is printed.

### **Start page and end page**

Only the pages between the start page and end page inclusive are printed. Change the settings if you want just part of the text printed.

### **Number of copies**

Normally, one copy of the text is printed. The number of copies can be set to any number between 1 and 255. The chosen number of copies will then be printed with a single print command.

### **Page length**

The default value is 66 lines, which is the length of standard 11 inch paper. If you use 12 inch paper and standard line spacing, the correct value is 72. Note that page length refers to the number of lines of text that would fit on a page, not the number of lines that will actually be printed. The latter depends on the margin settings (see below).

### **Line spacing**

The usual setting is 1. Change this to 2 to print double spaced text. It is usually better to set the line spacing with a stored command (see chapter 11).

## Adding page numbers

The default settings of PROTEXT will mean that a page of text will be printed with three blank lines at the top and bottom of the page and sixty lines of text, without any page numbers.

After entering the 'Set print options' section, use the RETURN key to skip over the margin settings and press Y when you reach the 'Page number at Top ?' question. Press ESC to finish setting print options and print the text using the PRINT command. You will find that PROTEXT first prints three blank lines (known as the top margin) followed by the number 1 in the middle of the next line. This is the page number and is your first example of a header. There is a further blank line between the page number and the start of your text – this gap is known as the header margin. After the main text comes the footer margin followed by the bottom margin.

## Changing the page layout

By entering new margin values you can rearrange the page layout with larger or smaller gaps at the top and bottom of the page. The use of these margins is described fully in chapter 11. The last margin value is 'Side margin'. This is the number of extra spaces printed between the left hand edge of the paper and the first column of your text. Its main use is to allow text to be centred on the line, and is thus related to the right margin column of the ruler line and the width of the paper.

Side margin = (paper width – right margin setting) / 2.

## Using form feeds

It is not normally necessary to enable form feeds since PROTEXT uses the page length and line spacing settings to calculate how many blank lines to print at the end of every page, so you can safely ignore this feature. Sometimes, however, it is useful to send form feed codes after each page.

## Saving print options

It can be convenient to save the print options for printing out a number of documents without having to change them every time. Enter the command SETPRINT, and press RETURN at the following questions:

```
Set print options      (y/n)?
Change control codes  (y/n)?
Redefine characters   (y/n)?
```

Finally press Y at the 'Save printer driver (y/n) ?' question. You will be prompted for a filename. This file will contain all the new print settings and can be recalled at any later time by the command PRINTER, e.g. PRINTER letter.drv, either from command mode, or using a stored command (see section on Stored Commands). This command is also available as an external command ( ' | PRINTER ' ). |PRINTER can be used within a BASIC program which can be run to configure PROTEXT automatically.

```
Example of use:      CPC664/6128  |PRINTER, "driver"
                   CPC464:      a$= "dtiver": |PRINTER, @a$
```

The command PRINTER \$ or PR \$ restores the default printer driver, which includes the print options and control codes (see chapter 12).

See also the section on 'PROTEXT and BASIC' in chapter 13.

## 11. STORED COMMANDS

Stored commands are instructions to the printer which are stored within the text. They cover such things as page length, page numbering, margins and line spacing. A stored command occupies a line by itself and is edited as normal text, but during printing it is obeyed and not printed. (If you want a printed copy of the text complete with stored commands, this can be done. See chapter 15.)

When printing is taking place, the program will make use of the default settings for the various printing options, until it comes across a stored command, in which case the stored command has the effect of overriding the defaults, until either printing is complete or the stored command is cancelled by a further stored command. You should note that some of these commands take immediate effect, whilst others only take effect from the next page.

A stored command line is denoted by a greater-than sign ( '>' ) in the first column. Columns 2 and 3 contain a two letter code defining the instruction. The remainder of the line may contain a parameter for the command. A semicolon may be used to terminate the command, allowing a comment to be put on the same line. Any characters after a semicolon are ignored (unless the semicolon is enclosed in quotes). Any line with a '>' in column 1 that is not followed by a known command is taken as a ruler line if columns 2 and 3 each contain one of the characters: 'L', '-', '!' or a space.

Whenever text is printed, PROTEXT performs a syntax check on the stored commands. If an unrecognised command is found, the syntax check stops and an error message is displayed. You should then press ESC and correct the mistake. The cursor will be placed on the bad command for you. This syntax check is the reason for the slight pause before the text is printed.

Note that most stored commands only take effect at the next new page. The exceptions, which take effect immediately, are CE, CO, EM, EP, EX, LS, OM, OP, PA, PR, SM, and WT.

The rest of this chapter describes every stored command. In this section the parameters are described by abbreviations:

n	A number less than 256.
nn	A number less than 65536.
(n)	An optional number less than 256.
text	A string of characters.

## Printing layout commands

These commands are concerned with when and where text will be printed on a page.

PN nn Page number

The page number can be printed at the top or bottom of every page (see HE and FO, below). If a PN command is not given, the first page will be number 1 and numbers will increase by 1 for each new page. However the page number can be set to any value at any point in the text.

PA (n) Page throw

In its simplest form ( >PA ), this command causes a new page to be started when the text is printed.

More precisely, if no parameter is given this is an unconditional page throw, causing the appropriate number of blank lines to be printed so that printing of the text will continue from the top of the next page. If a parameter is given this is a conditional page throw. A new page will be started only if the number of blank lines remaining on the page is less than or equal to the number specified. If the PA command occurs at a natural page break then it will not force an extra new page.

EP (n) Even page throw

As PA except that if the new page has an odd number, a complete blank page will be printed. In other words the text is made to start at the top of an even numbered page.

OP (n) Odd page throw

As PA except that if the new page has an even number, a complete blank page will be printed. In other words the text is made to start at the top of an odd numbered page.

LS n Line spacing

Defines the number of line feeds to be printed after each line of text. The default is 1, that is single spacing. Do not use >LS 0 to prevent double line feeds — this would work but would have the side effect of printing the whole text without any page breaks. See example under the 'EX' command.

CE text Centre line

This is used in conjunction with the format command. The text is centred during formatting and not printing. It is only useful if the text might be re-formatted with different left and right margin settings and eliminates the need to manually change all centred lines of text.

## Paper layout commands

These commands are concerned with the dimensions and positioning of the area of the paper that the text is to be printed on.

- PL n**            Page length  
 PL defines the actual size of a page of paper, and is different to the number of lines of text printed on a page. The default page length is 66, which is the correct setting for standard 11 inch paper.
- TM n**            Top margin  
 The top margin is the number of blank lines left at the top of every page, above the header. The default is 3.
- BM n**            Bottom margin  
 The bottom margin is the number of blank lines left at the bottom of every page, below the footer. The default is 3.
- HM n**            Header margin  
 Defines the number of lines between the top margin and the first line of the text. The top line of the header margin may have the header text printed on it (see 'HE', below). The default is 2, but it is only printed if headers are on.
- FM n**            Footer margin  
 Defines the number of lines between the last line of text and the bottom margin. The bottom line of the footer margin may have the footer text printed on it (see 'FO', below). The default is 2, but it is only printed if footers are on.
- Note: the number of lines of text printed on a page is given by the formula  

$$PL - TM - BM \text{ (} - HM \text{ if headers on) (} - FM \text{ if footers on)}$$
 i.e. the page length minus the sum of the sizes of the margins.
- SM n**            Side margin  
 Defines the number of spaces printed at the start of every text line between the paper's edge and the first column of text. The default is 5. This is called 'side margin' to distinguish it from the left margin that can be set on a ruler line. Use this command to print text centrally on the paper, and leave the left margin of the ruler set at column 1 (except where text is indented). The default ruler and side margin have been chosen for this reason.
- EM n**            Even margin  
 Defines the number of spaces printed at the left hand edge of every even numbered page. The default is 5.
- OM n**            Odd margin  
 Defines the number of spaces printed at the left hand edge of every odd numbered page. The default is 5.

## Defining headers and footers

Initially no headers or footers will be printed. A header or footer definition command is required. Each of the following commands takes a string of text as the parameter. This is the string of text that is printed at the top or bottom of the pages, such as a title. The text that is printed begins in column 5, so leave one space after the command name. In the rest of the line the text should be typed exactly as you want it to appear.

There are two points to note with regard to defining headers and footers. First, the page number can be printed anywhere in the header. To do this type a percent symbol ( ' % ' ). The page number will then be printed starting in the column occupied by the percent symbol in the text.

The second point is that since the first four columns are occupied by the stored command name, the text will be printed four columns to the left. So to position the header or footer correctly relative to the rest of the text you should enter the string before the command name. Similarly, if you want the string centred you should centre it (CTRL-C), then move to column 1 and type '> HE ' or '> FO '.

HE text      Header definition

Turns headers on and defines the header text which is to be printed at the top of every page. The text is printed on the top line of the header margin.

FO text      Footer definition .

Defines the footer text which is to be printed at the bottom of every page. The text is printed on the bottom line of the footer margin.

HE OFF      Turn headers off, but does not affect the header text.

HE ON       Turn headers on, but does not affect the header text.

FO OFF      Turn footers off, but does not affect the footer text.

FO ON       Turn footers on, but does not affect the footer text.

EH text      Even header definition

OH text      Odd header definition

Defines the header text which is to be printed at the top of every even or odd numbered page.

EF text      Even footer definition

OF text      Odd footer definition

Defines the footer text which is to be printed at the bottom of every even or odd numbered page.

### Even and odd pages

The commands EH, OH, EF, OF, EM and OM are provided so that text may be produced in the style of a book. They allow you to print different titles on even and odd pages (such as the title of the book on even pages and the title of the chapter on odd pages). It also allows you to print page numbers at the outside of the page (that is at the left on even pages and at the right on odd pages). EM and OM allow different width side margins to be specified. This is principally so a wider margin can be left on odd pages so that the text is not printed too close to the fold of the book. The use of the commands HE, FO or SM is equivalent to setting both even and odd header, footer, or margin to the same value.

### Sundry stored commands

OC nums      Output codes to printer.

This command takes a list of numbers separated by commas, tabs, or spaces and sends the numbers directly to the printer. Numbers may be in decimal, hexadecimal or ASCII. See the section 'Defining printer control codes' in chapter 12 for more details of how to enter codes. Characters are sent to the printer even if they are not within the block being printed, on the assumption that they are non printable characters.

For example, to switch an Epson-compatible printer to French mode, from within the text: >OC 27, "R", 1

**WARNING:** The computer has a 7 bit printer output. This means it is IMPOSSIBLE to send codes greater than 127 to the printer.

PR file      Load printer driver.

The named printer driver is loaded, and all control codes and characters are immediately defined as in the printer driver. The print option settings from the printer driver take effect at the start of the next page. This allows a file to have its own printer driver which is loaded automatically.

CP ON        Switches to continuous printing.

CP OFF       Switches to single sheet printing.

NP ON        Turns on the new page at end of printing.

NP OFF       Turns off the new page at end of printing.

FF ON        Enable form feeds.

Turns on the use of form feed characters at end of page, instead of printing the correct number of line feeds.

FF OFF       Disable form feeds.

CO text      Comment

>> text      Comment

Allows the insertion of comments in the text. Anything on a comment line is completely ignored.

WT text      Wait

Printing pauses and the string is displayed on the screen. Printing resumes when a key is pressed. ESC will take you back to command mode.



**EX text**      External command

This causes an external command (in ROM or an RSX) to be executed during the printing of the text. This facility is provided for flexibility and future expansion. The ability to intercept Amstrad firmware routines provides many intriguing possibilities!

**Hint:**            The stored commands WT and EX may be required in the middle of a line of text. To achieve this put the command 'LS 0' before the line and split the line with the WT or EX command line inserted between the two parts. Don't forget to restore the line spacing before the remainder of the split line.

### Example of stored commands

The following is an example of the sort of commands that one would keep stored as a file on disc, for loading into PROTEXT prior to typing a letter. You can keep a number of files for different types of page layout on disc, enabling you to readily configure PROTEXT for your most commonly used layouts. Other stored commands would be embedded into the text as and when required.

```
> co Blank letter template
> pr letter                               ; Load printer driver
> ls2                                     ; Double line spacing
> pl72                                   ; Set page length to 72 (for 12 inch paper)
> tm0                                    ; No top margin
> sm8                                    ; Side margin 8 spaces
> he                                     Page %
> fo                                     contd.
> -----|-----R
>>>> Note that the ruler line is a special stored command and
>>>> is saved along with the other commands.
```

### Page mode

You will see that the status line displays the current page and line number. This is the line number within that page. This takes into account all SETPRINT values and stored commands affecting page length, page number, margin sizes and line spacing. This means that there is no need to print the text to see where page breaks occur – just look at the status line to see where the new page starts. You can then decide where to insert page throw commands ( >pa ) at convenient places in the text, and immediately check the effect.

Two commands are very useful in relation to placing page breaks. These are the two commands to move by a page at a time. Press CTRL- ) to move to the start of the next page, and CTRL- ( to move to the previous page boundary. The brackets , ' ( ' and ' ) ' are obtained simply by pressing the number 8 or 9 keys. There is no need to press SHIFT.

One effect of using page mode is that scrolling back up the text is slightly slower, so if page numbers are not required you should turn off page mode. The command for toggling page mode on or off is CTRL-P. The page number on the status line will disappear, and the line number will become the line number within the whole text.

## 12. PRINTER CONFIGURATION

Printer control codes are used to control the special features of a printer, such as underlining, different sizes and styles of print, subscripts, superscripts and selecting different character sets.

Each printer has its own codes, so in general PROTEXT must be configured for a particular printer (that is, told what codes the printer uses). This may sound complicated, but fortunately PROTEXT makes this very easy. If your printer is an Epson or is Epson-compatible then there is nothing to do because PROTEXT has the Epson codes built in.

The printer control codes can be entered anywhere in the text. This is done by typing CTRL-X followed by a letter defining the code. Any letter can be defined to represent any code, but a few have been allocated names covering the most common features:

b	bold (emphasised)
c	condensed print (17.14 cpi)
d	double-strike
e	elite (12 cpi)
f	font change 1 (French)
g	font change 2 (German)
i	italics
l	enlarged
n	normal (pica) (10 cpi)
p	proportional (not available on all printers)
q	near letter quality (NLQ) (not available on all printers)
s	subscript
t	superscript
u	underline

When these codes are entered the letter appears in the text in inverse video display. In most cases the first occurrence of the code turns on the appropriate feature and the second occurrence turns it off. So, for example, to underline a single word, move the cursor to the start of the word and type CTRL-X followed by U. Then move to the end of the word and do the same.

The codes e, and n are different, having no meaning for 'off'. They are mutually exclusive styles of print, so turning one off is done by selecting another. On certain printers (including the Kaga Taxan) the q code also works in the same way, but on other printers the NLQ print can be turned off with a second q code. The codes defined by PROTEXT cater for both of these types of printers.

Note that all these codes only work with Epson-compatible printers. Users of other printers need to redefine the codes (see the next section).

Although the printer codes occupy a column on the screen they do not when the text is printed. Therefore any tabulation or formatting will appear wrong when printer codes are on the screen. A command is included to avoid this problem and view the text without the printer codes. This is CTRL-V. Pressing CTRL-V a second time restores the display of printer codes.

### Defining printer control codes

The command SETPRINT is used for this. You will need to consult your printer manual for the codes to perform each feature that you will need. Then, selecting the 'Change control codes' part of SETPRINT, choose a letter to represent the feature and enter the codes. It is a good idea to keep to the names provided where the features you are using are the same. So enter your printer's underline code for 'U', italics for 'I', etc. The codes without names are initially undefined, but can be defined in the same way.

Although all letters can be used as control codes, w to z are not displayed due to lack of space on the screen.

For each definition you will be asked for the codes for 'on' and the codes for 'off'. Enter these codes on one line separated by spaces or commas. If a particular feature has no code for off then just press RETURN.

The printer codes may be entered as decimal numbers, hexadecimal numbers (prefix these with & or #), or as ASCII characters. The ESC code, which is used by most printers must be entered as the number 27. For example to enter the code 'ESC #' type 27 76 or 27 "L" or just 27 L. Note that the ASCII character 'L' may be enclosed in quotes; to enter a decimal digit as an ASCII character it must be enclosed in quotes to distinguish it from the decimal number. For example, 27 "3" is the same as 27 51. The codes will always be listed as decimal numbers. Appendix 4 contains a table to convert the decimal codes to ASCII characters.

### The reset code

There is one special code that should be defined. This is the reset code, and is that code which resets some or all of the printer's functions. This code is sent to the printer at the commencement of every PRINT command. If this is not defined correctly then the printer will start in whatever state it was left, so possibly confusing PROTEXT (if a feature has been left on when it should be off). If your printer has no reset code you must make sure that no functions are left selected at the end of a print run. Alternatively, turn the printer off and on again before printing.

Important: the reset code as defined (27, 40) is always sent to the printer. On some non Epson compatible printers this may cause the "@" character to be printed. To prevent this the reset code definition must be removed. To do this press @ in response to 'Press printer control letter (A to Z) and then press RETURN twice.

Note: The reset code may be entered within your text, but will normally need to be on a line by itself since this code usually empties the contents of the printer's print buffer.

Once you have entered all your codes, you can save the result in a file using the last section of SETPRINT. This file is now your 'printer driver' and should be loaded in (either from PROTEXT or using the external command 'PRINTER) each time you are going to print some text. Codes can of course be altered or added at any time. This file also contains the print options that were described in chapter 10.

### **Redefining characters**

The third option of SETPRINT is to redefine characters. Any ASCII code can be defined to send any sequence of codes to the printer. These definitions are also stored in the printer driver file.

Some symbols may be required that are not available as a single character on the printer, but can be made up by printing one character, moving the print head back, and superimposing another character. This can be done on PROTEXT using the SETPRINT command. Choose a code that is available from the keyboard (the ASCII code of a character you will not be using) and define the character using the SYMBOL command from BASIC. Now go into PROTEXT, enter the command SETPRINT, and select the option to redefine a character. Press the key you have redefined and enter the sequence of codes that will make the printer print the character.

You may want to print symbols that are included in your printer's character set, for example Greek letters. This is possible on some, but not all, printers. If you have a daisy wheel printer it may be possible to buy an additional daisy wheel containing the required characters. If you have a dot matrix printer you will need to redefine the character matrices in the printer. The printer manual will need to be consulted to do this – and you must be prepared for some hard work in designing the characters. Not all dot matrix printers allow you to redefine characters in this way. The best way to redefine the characters is to send the codes to the printer with the > OC command. This allows any number of characters to be defined, and means that the definitions are stored with the text.

In order that the characters are displayed on the screen as they are printed, BASIC'S SYMBOL command must be used to re-define the same characters for the screen that you have defined for the printer.

## Application examples

### 1. Non-break hyphens.

Select an infrequently used character, for example, SHIFT- \ , and redefine it to be a hyphen (decimal 45). Use this character for your non-break hyphen; it will look wrong on the screen but it will be printed as a hyphen and the formatter will not split a word at the hyphen.

### 2. Avoiding problems with line feeds.

Some printers print a line feed character with every carriage return character, so your text may be printed with double spacing. If this happens, redefine the CTRL-J character with a new code of 0, so that PROTEXT will no longer print line feeds. This can be done with the 'Redefine characters' option of SETPRINT by typing CTRL-J when prompted for the character to redefine.

A preferable way to prevent the extra line feeds is to set the DIP switch in your printer to disable auto line feeds.

### 3. Defining a character on the printer.

As an example, the method for printing an upwards pointing arrow will be described. The commands listed are for Epson-compatible printers only, although the principle holds for other printers.

The ' ↑ ' symbol, which is available on the keyboard, is not a standard ASCII character, and is printed as a circumflex. The following commands will re-define the printer's character matrix so that the arrow is printed.

```
> oc 27, " % ", 1, 0, 27, ' : ', 0, 0, 0
```

```
> oc 27, " & ", 0, 94, 94, 0, 16, 0, 32, 0, 126, 0, 32, 0, 16, 0, 0
```

### 4. Using form feeds

It may be useful to send a sequence of codes to the printer at the end of every page. This can be done by redefining CTRL-L (form feed) to the required codes, and enabling form feeds. One use of this might be to adjust for paper that is of a non-standard length.

### 13. PROTEXT and BASIC

PROTEXT is compatible with BASIC in that text and a BASIC program can be in memory at the same time. Editing one does not affect the other. Most BASIC commands may be freely used by first quitting PROTEXT, entering the BASIC command and then returning to PROTEXT, for example:

```

QUIT                               (from PROTEXT)
KEY 140, "Commonly used string"
|P                                  (from BASIC)

```

If you have a colour monitor you may find the Amstrad's default colours unsuitable in 80 column mode. You can either select your own choice of colours from BASIC before entering PROTEXT, or use |CP to enter PROTEXT and set colours.

To avoid typing these commands in every time, they can be saved as a BASIC program, which can be RUN before loading or calling PROTEXT. If you want to change any key or character definitions, or load a printer driver (using |PRINTER) then these can be conveniently included in the same program. The program can also load and run, or call, PROTEXT.

If you have the ROM version of PROTEXT, call your initialisation program 'DISC'. Then you can run it by pressing CTRL-ENTER on the CPC6128, or CTRL and the small ENTER key on the CPC464 or CPC664.

The disc version of PROTEXT can be configured by editing the file 'DISC2.BAS' on the PROTEXT disc. Take great care in doing this and restore the write protect tab before using the disc again. This file already includes code to give you the option of setting suitable colours for the screen.

Example of a loader program suitable for use with the rom version. It should be saved to disc using SAVE"DISC", thus enabling the loading and configuring of PROTEXT by simply pressing CTRL-ENTER.

```

10 REM Initialise Protexit
20 KEY 1, "m a:letter"+CHR$(13) : REM Stored commands for letter
30 KEY 2, "m a:manscrip"+CHR$(13) : REM Stored commands manuscript
40 KEY 3, "m a:manscr2"+CHR$(13) : REM Double space manuscript
50 KEY 4, "m a:letter"+CHR$(13) : REM headed letter
60 INK 0,13: INK 1,0: BORDER 10: REM set up colours
70 MODE 2
80 |PRINTER, "dmp2000" : REM load printer driver
90 |B :REM set up drive B as selected drive for text files
100 |P : REM Enter Protexit

```

You should note that lines 20 - 50 define the function keys to merge in 'Stored command files', (previously saved on the same disc), containing the commands for the type of document to be written. This enables you to easily add or change the stored commands, even when a document is completed, by pressing the appropriate function key when in command mode. Line 60 may be changed to select your preferred choice of colours.

There are a few points to be aware of concerning the compatibility of BASIC and PROTEXT.

1. If a BASIC program is saved when there is text in the memory, the text will be saved with the program (but will not be usable when the program is loaded back). To avoid this, clear the text (with the PROTEXT command CLEAR) before saving the program.
2. The text area is deleted by any of the following BASIC commands: NEW, LOAD and RUN"filename". The BASIC command DELETE will delete the BASIC program but not the text.
3. BASIC variables are destroyed when PROTEXT is used.
4. You can initialise many other aspects of the machine from BASIC before or after calling PROTEXT, for example, loading your own RSX (resident system extension). If you change HIMEM so that the RSX is stored above HIMEM then PROTEXT will not affect it, and you can use the commands from PROTEXT, if appropriate.

A useful tip for ROM version users of PROTEXT (CPC464 owners in particular), is that when wishing to do any 'File handling' from Basic, such as renaming or erasing files, it is more convenient to enter PROTEXT command mode and make use of the 'free form' of command entry to carry out these actions, thereby avoiding the need to use the normal BASIC method of defining the strings first and then using them with the command, with all the associated punctuation.

Example – To rename a file from "oldname" to "newname".

Enter |P then REN newname=oldname

instead of the cumbersome alternative:

A\$="newname": B\$="oldname": |REN, @A\$, @B\$

## 14. USING PROTEXT WITH OTHER PROGRAMS

### Loading in files from other word processors

PROTEXT will load files created from almost any other word processors or text editors. These will generally be ASCII files and so you will end up in 'Program editing mode'. Use DOC to return to 'Document mode' and then use find and replace on the whole file to convert return characters in mid-paragraph to spaces. It is useful to use the 'B' option when doing this because it is then easy to see which returns are marking the end of a paragraph, and should therefore be left in. The command you should use is: REPLACE "!", " " " BG

You may also find it useful to replace some double spaces with single spaces, with: REPLACE " " " ". This can be used repeatedly until there are only single spaces between all words. The reason this may be necessary is that some word processors insert hard spaces between words when justifying. Protext uses soft spaces for this and so the extra hard spaces must be removed so that formatting will work correctly.

Finally use the FORMAT command to re-format the entire file.

### Creating an ASCII file

There are occasions when it is necessary to produce a purely ASCII file for use with other programs, or for transmission via a serial interface. The command PRINTF will save such a file. Any printer control codes in the text are ignored, but stored commands are acted upon.

### A useful tip

If files from other word processors contain control codes, these can normally be replaced by the correct codes for PROTEXT quite easily, by making use of the REPLACE option in PROTEXT (see chapter 8). There are, however, a few programs which produce control codes that can not be replaced in the normal way, as the characters cannot be produced from the keyboard. For those few occasions when this may be necessary, the following procedure should be followed.

Use Q to exit PROTEXT, then type in the following line and press ENTER. Use 'jP' to return to PROTEXT.

```
KEY 0, "Q" +CHR$(13) + "input a$: key 1, chr$(val(a$)) : jP "+CHR$(13)
```

The procedure to follow is then quite straightforward. When you want to replace a control code, refer to the Amstrad manual, to obtain the Ascii code of the character you wish to replace. Press function key 0 and then enter the Ascii code, in decimal, of the character to be replaced and press ENTER. Use the REPLACE option in the normal way, and when prompted 'Replace with ', simply press function key 1, then continue as for a normal replace. f0 can be used as often as necessary, to create all the characters to be replaced.



## 15. EDITING PROGRAMS

At the top left of the status line you will see the word 'Document'. This indicates that PROTEXT is in document mode, which is the usual form of editing, allowing all the formatting facilities. Sometimes, particularly if you are editing a program (BASIC, assembler, or anything else) these facilities are not required (and can be a nuisance). For this form of editing PROTEXT has another mode of use, called 'Program mode'. Program mode is selected by the command PROG, entered from command mode. Do this and you will see the word 'Program' displayed at the top left. There will only be one status line and no ruler line. In program mode tabs are set at every eighth position and cannot be changed. There is no right margin as there is no formatting. To revert to document mode use the command DOC.

There is one special command included in PROTEXT for programmers in BASIC, and users of MAXAM. This is 'MODIFY'. This allows you to add or remove line numbers to the text. So BASIC Programs can be typed in without typing the line numbers, and the line numbers added later. MODIFY also allows you to add and remove quotes to the start of a line. This operates in the same way as in the MAXAM editor, and is only relevant to MAXAM users, so its use is explained in the MAXAM manual. MODIFYB is also provided to modify a block of text.

BASIC programs must be saved in ASCII format before editing with PROTEXT and should be re-saved after editing, whilst in program mode, for re-use from BASIC.

### **Printing in program mode**

The PRINT command operates differently in program mode. Stored commands are printed and not obeyed, and the print options are ignored. Instead, the text is printed continuously with no margins and single line spacing. Printer control codes are not printed and character redefinitions are not effective. This is suitable for printing program listings, and is also useful to print a copy of the text with the stored commands shown. In the latter case enter the PROG command before printing and the DOC command afterwards. The printer reset code is still sent, so by redefining this code the text can be printed in a different type style, e.g. with USA font to print # not £, or in condensed or NLQ modes.

### **Automatic selection of document or program mode**

Most users of PROTEXT can safely ignore program mode, document mode is selected automatically when PROTEXT is called. PROTEXT saves the text in a different type of file depending on whether document or program mode is selected. This is so that when a file is loaded the correct mode for that file will automatically be selected. Program mode files are saved in ASCII format, but are not pure ASCII. If you require a pure ASCII file, you should save it using the PRINTF command.

## 16. NON-ENGLISH LANGUAGES

### Using PROTEXT in languages other than English

PROTEXT includes commands to enable the use of the following languages: Danish, French, German, Italian, Spanish and Swedish.

To select a language type the name of the language in command mode. The language name can be abbreviated to two or three letters which reflect the name of the language in that language. Hence DEU (TSCH), FR (ANCAIS), etc. This will cause the special characters of that language to be defined and displayed on the screen. Assuming that your printer has the same character set selected the characters will also print correctly on the printer. If your printer is incorrectly set (as it would be if you bought it in a foreign country) you should set your printer to the language you generally use. This can usually be done by an internal switch in the printer (refer to your printer manual for details).

The table below lists the special characters available and which keys need to be pressed. You may find it useful to stick labels on these keys.

Notes: if no language command has been used then English is selected by default. The character definitions for the other languages reduce the available text space a little.

### Mixing languages

Two special control codes are provided allowing you to mix three languages without having to define new control codes. These are ' f ' and ' g ' (the font change codes). These codes operate differently depending on the language you have selected, and so will be described for each of three different cases:

1. English users. The code ' f ' will select the French character set, and ' g ' will select German. A second ' f ' or ' g ' will re-select English. So, for example, to print German text when English is selected, type CTRL-X G before and after the German section.

2. German users. The code ' f ' will select English and ' g ' will select French. A second ' f ' or ' g ' will re-select German.

3. All other languages. The code ' f ' will select English, and ' g ' will select German. A second ' f ' or ' g ' will re-select the original language.

Using the font change codes will cause the characters to be printed correctly, but only one character set can be displayed on the screen. You can switch between languages to view the various characters on the screen.

Note that these control codes are only correct for Epson compatible printers. Users of other printers must redefine this code (or load their printer driver containing the definitions) after using the language command.

A further example may serve to clarify the above. This will summarise the methods of printing German characters.

1. For German users.
  - (a) Set the DIP switch on the printer so that the printer powers up with the German font selected.
  - (b) Type DEU immediately after entering PROTEXT, to switch the screen to German.
  - (c) Load your printer driver (if any) AFTER switching the screen to German.
2. For English users, occasionally writing in German.
  - (a) Type GERMAN to switch the screen to German.
  - (b) In the text type CTRL-X G before and after every section of German text.
  - (c) Revert to ENGLISH before printing the text.

Language Selected							
Key	English	Danish	French	German	Italian	Spanish	Swedish
#	#	#	#	#	#	#	#
\$	\$	\$	\$	\$	\$	\$	\$
@	@	@	•	S	@	@	•
[	[	B	ø	X	\	i	X
]	]	Ø	ø	O	é	ñ	O
↑	↑	A	ø	U	è	¿	A
SHIFT-\	·	·	·	·	·	·	·
{	{	æ	é	ä	ù	..	é
...	...	ø	è	ö	ò	ñ	ö
CTRL-2	}	ä	é	U	é	·	ä

### Superimposing characters

There are some occasions when it is necessary to print two characters at the same position, for example to print a circumflex ( ^ ) above the letter ' o '. This is important for French writers, but the method can equally be used for any character.

The principle is quite simple, the letter ' o ' is printed first, the printer head is moved back one space, and then the circumflex is printed. To do this a control code must be defined to do the backspace and circumflex. Use SETPRINT and select an unused control code, say ' h '. Enter 8,94 for the ' on ' code. Leave the ' off ' code blank (just press RETURN).

At the point in the text where the ' o ' -circumflex is to appear, type O followed by CTRL-X H. When the text is printed the circumflex will appear in the correct place.

Note: an alternative method would be to define the control code to just do the backspace. This is not as good a method because two characters will appear on the screen corresponding to only one on the printer, and so right-justification will not work.

## Configuring the keyboard

Although 7 different languages are available in PROTEXT, the keys that need to be pressed to obtain the characters may not always be convenient. This is because the characters replace standard ASCII characters and so the keys that need to be pressed are fixed by the standard.

It is however, possible to configure the keyboard for use in a particular language. This can be easily done using the BASIC command 'KEY DEF' and may be incorporated in an initialisation program as described in chapter 13.

As an example for German users, the a-umlaut character is normally produced by the '[' key. Unfortunately this gives upper case if SHIFT is not pressed, and lower case if SHIFT is pressed. This can be reversed by the following command:

```
KEY DEF, 17, 1, ASC ( " { " ), ASC ( " [ " )
```

In this instruction 17 is the key number. The key numbers may be obtained from the manual, or from the top of the disc drive on the CPC664 and CPC6128. The 1 means that the key will 'auto-repeat'. The next parameter, ASC ( " { " ), is the ASCII code that will be produced by the key without SHIFT — in this case the code of the ' { ' character which is the same as the code for the lower case a-umlaut. Finally, ASC ( " [ " ) is the code that will be produced by the key with SHIFT.

One complete example will be given for illustration. This example configures the keyboard for Norwegian users (who use the Danish characters).

```
100 REM configure keyboard for Norwegian users
110 REM
120 KEY DEF 26, 1, ASC ( " } " ), ASC ( " ] " )
130 KEY DEF 17, 1, ASC ( " ; " ), ASC ( " + " )
140 KEY DEF 29, 2, ASC ( " \ " ), ASC ( " \ " )
150 KEY DEF 28, 1, ASC ( " { " ), ASC ( " [ " )
160 KEY DEF 19, 1, ASC ( " \ " ), ASC ( " * " )
170 KEY DEF 22, 1, ASC ( " | " ), ASC ( " - " )
180 REM
190 |PROTEXT
```

**A1. GLOSSARY**

AMSDOS	The program which controls the use of the disc drive.
ASCII	A code used to represent text within a computer.
BACKUP FILE	The copy of the previous version of a file that is retained whenever a file is saved.
BLOCK	A portion of text defined by two markers.
BYTE	The unit of storage of a computer capable of holding a single character.
CAPS LOCK	The state of the computer in which all letters typed are entered as upper case.
CATALOGUE	A list of files stored on a tape or disc.
CHARACTER	Any letter, digit or symbol.
COMMAND	An instruction to the computer to do something.
COMMAND MODE	The mode of operation of a computer program (e.g. PROTEXT, BASIC) that allows commands to be entered.
CONFIGURATION	The operation which customises the word processor for a particular printer.
CONTROL CODE	A number that represents an instruction and not a character. In particular an instruction to a printer (e.g. to underline or print italics).
CURSOR	The blob on the screen marking the place at which text will be entered.
DEFAULT	The initial setting of some feature of the word processor, such as insert mode on, page length 66.
DISC	A means of magnetic storage of data allowing fast access.
DOCUMENT MODE	The usual mode of operation of PROTEXT, in which all the formatting features may be used.
EDIT MODE	The mode of operation of a word processor that allows text to be entered and changed.
EXTERNAL COMMAND	A command provided by one program (e.g. PROTEXT) that can be used in another (e.g. BASIC).
FILE	A group of data collected together and stored on tape or disc.

FLOPPY DISC	A type of disc commonly used with microcomputers.
FONT	One of the character sets available on a printer.
FOOTER	One or more lines printed at the bottom of each page, in which titles and page numbers can be printed.
FORM FEED	A control code that causes a printer to feed the paper through to the start of the next page.
FORMAT	(i) An operation on a portion of the text which causes the text to be arranged in some regular way. (ii) An operation that must be performed on a disc to make it ready for use.
GLOBAL	Everywhere, i.e. through the entire text.
HEADER	One or more lines printed at the top of each page, in which titles and page numbers can be printed.
K	A unit of storage equal to 1024 bytes.
LINE FEED	A control code that causes a printer to feed the paper through by a single line.
LOAD	Copy data from tape or disc to the memory so that the data may be used.
LOWER CASE	Small letters.
MAIL MERGE	An operation whereby a standard letter or document is printed many times using names and addresses taken from a file.
MARGIN	(i) The normal limit of text to the left and right. (ii) The blank space on the paper surrounding the text.
MARKER	A pointer to a particular location in the text.
MEMORY	The part of a computer where data (programs, text, etc.) is stored, and may be accessed quickly.
MERGE	Load one file into memory without clearing what is already there.
MODE	(i) One of the three types of screen display — the mode determines the number of lines and columns displayed. (ii) One of a number of states of operation of a program, e.g. edit mode, command mode, document mode, insert mode.
PAGE THROW	An instruction to start a new page when printing.

PRINTER DRIVER	A file that configures a word processor to print on a particular printer and/or paper.
PROGRAM MODE	The alternative to document mode, used for editing programs. The formatting features are not available.
PROTEXT	A computer program (word processor) produced by Arnor.
RETURN	The code used in the computer to mark the end of a line.
RIGHT-JUSTIFY	An operation on a line of text which causes the text to be spread out so that the last character is at some specified column.
RSX	(Resident System Extension) A program that is loaded from tape or disc and provides extra external commands.
RULER	A line at the top of the screen showing left and right margins and tabs.
SAVE	Copy data from the memory of the computer to a tape or disc so that the data may be preserved.
SHIFT LOCK	The state of the computer in which all keys give the character normally given if the key is pressed together with SHIFT.
SOFT CHARACTER	A character in the text used for formatting.
STATUS LINE	The line at the top of the screen when in edit mode which shows various useful information.
STORED COMMAND	A command that is stored in the text but is not printed as part of the text. Stored commands are concerned with printing.
TAB	A position in a line to which the cursor moves when the TAB key is pressed.
TOGGLE	A command which switches some function between on and off.
UPPER CASE	Capital letters.
WILDCARD	A special character which will match any character when searching for a string.
WORD PROCESSOR	A computer program that handles the entering, storing, formatting and printing of text.
WORD-WRAP	The operation of moving a word onto the next line when there is not enough room on the current line.

## A2. TECHNICAL APPENDIX

This section is optional reading, included for the benefit of those who want to get PROTEXT to do more than may at first sight seem possible, for those with certain specialist applications, and for those who are simply interested in delving a little further into the workings of PROTEXT and the computer in general.

### (a) Memory Map

Address	
0	Firmware workspace
40	Background ROMs lower workspace area (note used by Arnor ROMs)
(40)	BASIC input buffer
(170)	BASIC variable storage
textstart	PROTEXT text area
firstfree	*** free memory ***
lastfree	PROTEXT temporary workspace (file buffers, etc.)
HIMEM +1	*** free memory if HIMEM altered ***
(A270)	User defined characters
(A2F0)	Background ROMs upper workspace area
AC00	BASIC workspace
B100	Firmware workspace
C000	Screen memory

Addresses given in brackets are variable – the numbers shown are for a machine with AMSDOS, UTOPIA, MAXAM and PROTEXT ROMs all initialised.

### (b) Calls to Prottext

Prottext was designed to encourage add-on software. There are a number of calls that allow a program to interact with PROTEXT in various ways. It is essential that any such software uses these calls in order that it will work on any version of PROTEXT. Any program using these calls is guaranteed to be upwards compatible with any future version of PROTEXT. The information is available to anyone who sends an s.a.e. to Arnor.



**(c) Default Printer Control Codes**

These are the codes built in to PROTEXT and are for Epson-compatible printers. n is a country code, and its meaning is as follows: 1=French, 2=German, 3=English, 4=Danish, 5=Swedish, 6=Italian, 7=Spanish.

	name	codes for on	codes for off
@	Reset printer	27,64	—
b	Bold (emph.)	27,69	27,70
c	Condensed	15	18
d	Double-Strike	27,71	27,72
e	Elite	27,77	—
f	Font change 1		
	English mode:	27,82,1	27,82,3
	Other languages:	27,82,3	27,82,n
g	Font change 2		
	German languages:	27,82,1	27,82,2
	Other languages:	27,82,2	27,82,n
i	Italics	27,52	27,53
l	Enlarged	27,87,49	27,87,48
n	Pica	27,80	—
p	Proportional	27,112,49	27,112,48
q	NLQ	27,40,27,120,1	27,120,0
s	Subscript	27,83,49	27,84
t	Superscript	27,83,48	27,84
u	Underline	27,45,49	27,45,48

**(d) Default Character Definitions**

English mode:

35 (#)	27, 82, 0, 35, 27, 82, 3
163 (£)	27, 82, 3, 35, 27, 82, 3

All other languages:

163 (£)	27, 82, 3, 35, 27, 82, n (n defined as above)
---------	---

## (e) Using function keys

Function keys can be used to enter frequently used phrases or command sequences. The BASIC command 'KEY' is used to set up the function key strings, which can be included in a configuration program (see chapter 13). If the UTOPIA ROM is fitted, the TOKENS command can be used to create a larger buffer for the expansion strings.

An example program follows, which sets up 4 function keys. The key numbers 0 to 9 refer to the function keys f0 to f9. In each case a key has a string of characters assigned to it, so that when the key is pressed it is as if all those characters were typed individually. The strings are made up of ordinary characters (e.g. 'Yours sincerely' in line 160) and special codes. Each of these codes represents a PROTEXT key or command. For example the code for CTRL-I (insert line) is 237. This is put into a string using CHR\$(237) (line 140). The complete list of codes is given below, so you can use any PROTEXT command.

Some particular points to note:

(i) the use of CHR\$(252), which is ESC, to switch between edit mode and command mode. A single function key can contain a mixture of the different types of commands.

(ii) the use of STRING\$(n,x) for repeated codes.

(iii) the cursor can be moved by CHR\$(240), CHR\$(241), CHR\$(242), and CHR\$(243).

(iv) Line 180 is an example of the use of a function key to enter commands from command mode, edit the text, and even insert a stored command and a printer control code. To try it, take a letter with the name and address of the recipient at the top left, and at least one blank line after the address. Set place marker 0 on the first column of the first line of the address. Then insert an envelope in the printer and press f2 from command mode. The result will be a printed address, 25 spaces across the envelope, in near letter quality (if your printer supports it). In this example, note the use of CHR\$(0) + "0" to move the cursor to place marker 0, CHR\$(11) to clear block markers before setting a marker with CHR\$(233), CHR\$(236) to move to the start of the next line, and CHR\$(24) + "q" to insert the NLQ control code (the same as typing CTRL-X q).

```

100 REM function key examples
110 REM
120 |TOKENS, 400           ' ignore if UTOPIA not fitted
130 REM key f0 inserts a ruler line
140 KEY 0, CHR$(237) + ">" + STRING$(3, 243) + "!" + STRING$(58, 243)
    + "R" + CHR$(236)
150 REM use key f1 at the end of a letter
160 KEY 1, "Yours sincerely" + STRING$(3, 236) + "John Smith" + CHR$(236)
    + "Managing director" + CHR$(236)
170 REM key f2 prints an address label automatically ( see above )
180 KEY 2, CHR$(252) + CHR$(0) + "0" + CHR$(11) + CHR$(233)
    + ">SM 25" + CHR$(13) + CHR$(24) + "q" + CHR$(252) + "f ! ! . "
    + CHR$(13) + CHR$(236) + CHR$(233) + CHR$(252) + "pb" + CHR$(13)
190 REM key f3 saves the text with a single key stroke from edit mode
200 KEY 3, CHR$(252) + "era *.bak" + CHR$(13) + "s" + CHR$(13)
    + CHR$(13) + CHR$(252)

```

## PROTEXT key translation table

These are the codes which must be used in a key definition to string command sequences together. The default key translation table is not suitable for PROTEXT to use because various key combinations return the same tokens ( e.g. COPY and SHIFT-COPY), while PROTEXT needs different tokens.

CTRL-@	0	CTRL-[	27
CTRL-A	1	CTRL-\	28
CTRL-B	2	CTRL-]	29
CTRL-C	3	CTRL-£	30
CTRL-D	4	CTRL-0	31
CTRL-E	5	CTRL-<	2
CTRL-F	6	CTRL->	31
CTRL-G	7	CTRL-(	220
CTRL-H	8	CTRL-)	221
CTRL-I	237	CTRL-*	222
CTRL-J	10	CTRL-+	223
CTRL-K	11	CTRL-TAB	225
CTRL-L	12	CTRL-hyphen	227
CTRL-M	238	SHIFT-TAB	228
CTRL-N	14	SHIFT- CLR	229
CTRL-O	15	CTRL-CLR	230
CTRL-P	226	CTRL-/	231
CTRL-Q	17	CTRL-DEL	232
CTRL-R	18	SHIFT-COPY	233
CTRL-S	19	CTRL-COPY	234
CTRL-T	20	CTRL-space	235
CTRL-U	21	SHIFT-RETURN	236
CTRL-V	22	CTRL-RETURN	236
CTRL-W	23	↑	240
CTRL-X	24	↓	241
CTRL-Y	25	←	242
CTRL-Z	26	→	243
		SHIFT-↑	244
TAB	9	SHIFT-↓	245
RETURN	13	SHIFT-←	246
CLR	16	SHIFT-→	247
DEL	127	CTRL-↑	248
COPY	224	CTRL-↓	249
ESC	252	CTRL-←	250
		CTRL-→	251

Note: When PROMERGE PLUS is installed, CTRL-B returns 219.

### A3. PROTEXT COMMAND SUMMARY

#### (a) Edit Mode

The commands marked ' \* ' are not available in program mode

CTRL-A	Alternate characters
*CTRL-C	Centre line.
*CTRL-D	Copy default ruler.
CTRL-E	Delete to end of line.
*CTRL-F	Format paragraph.
CTRL-G	Go to line.
*CTRL-H	Display help screen.
CTRL-I	Insert line.
*CTRL-J	Toggle right-justification on/off.
CTRL-K	Clear block markers.
CTRL-L	Go to last position.
CTRL-M	Move block.
*CTRL-N	Non-break space.
*CTRL-O	Toggle ruler on/off.
*CTRL-P	Toggle page mode on/off.
CTRL-Q	Scroll back 20 lines.
*CTRL-R	Copy current ruler.
CTRL-S	Hard spaces display on/off.
CTRL-T	Tabs and returns visible/hidden.
CTRL-V	Control codes visible/hidden.
*CTRL-W	Toggle word-wrap on/off.
*CTRL-X	Enter printer control code.
CTRL-Z	Scroll forward 20 lines.
CTRL.@	Set or go to marker or go to margin.
CTRL-TAB	Toggle overwrite/insert mode.
*CTRL-hyphen	Insert a soft hpyhen.
CTRL-space	Insert a space.
CTRL-/	Convert to upper case.
CTRL-\	Convert to lower case.
CTRL-[	Move to start of text.
CTRL-]	Move to end of text.
*CTRL-(	Move to previous page boundary.
*CTRL-)	Move to start of next page.
CTRL-<	Move to previous page boundary.
CTRL->	Move forward one paragraph.
CTRL-£	Move to top left of screen.

CTRL←	Move back to start of line
CTRL→	Move forward to end of line
CTRL↑	Scroll back 20 lines
CTRL↓	Scroll forward 20 lines
SHIFT←	Move back one word
SHIFT→	Move forward one word
SHIFT↑	Scroll back 1 line
SHIFT↓	Scroll forward 1 line
CTRL-*	Split line at cursor.
CTRL+	Join lines.
RETURN	Insert mode: split line and move to left margin of next line. Overwrite mode: move to left margin of next line.
SHIFT-RETURN	Move to left margin of next line.
CTRL-RETURN	As SHIFT-RETURN.
CLR	Delete at cursor.
SHIFT-CLR	Delete word.
CTRL-CLR	Delete line.
DEL	Delete before cursor.
SHIFT-DEL	As DEL.
TAB	Insert mode: insert tab character. Overwrite mode: move to next tab position.
SHIFT-TAB	Insert mode: move to next tab position. Overwrite mode: insert tab character.
SHIFT-COPY	Set or clear block marker.
CTRL-COPY	Copy block.
CTRL-DEL	Delete block.
ESC	Enter command mode.

**(b) Stored Commands**

The commands marked ' \* ' take immediate effect, the others take effect at the next new page.

>BM n	Bottom margin.
*>CE text	Centre line (for use with FORMAT command).
>CO text	Comment line.
>CP OFF	Single sheet printing.
>CP ON	Continuous printing.
>EF text	Define even footer text and turn footers on.
>EH text	Define even header text and turn headers on.
*>EM n	Even side margin.
*>EP (n)	Even page throw (can be conditional).
*>EX text	External command.
>FF OFF	Form feeds disabled.
>FF ON	Form feeds enabled.
>FM n	Even side margin.
>FO text	Define footer text and turn footers on.
>FO OFF	Turn footers off.
>FO ON	Turn footers on.
>HE text	Define header text and turn headers on.
>HE OFF	Turn headers off.
>HE ON	Turn headers on.
>HM n	Header margin.
*>LS n	Line spacing.
>NP OFF	Disable new page at end of printing.
>NP ON	Enable new page at end of printing.
*>OC n {,n }	Output codes to printer.
>OF text	Define odd footer text and turn footers on.
>OH text	Define odd header text and turn headers on.
*>OM n	Odd side margin.
*>OP (n)	Odd page throw (can be conditional).
*>PA (n)	Page throw (can be conditional).
>PL n	Page length.
>PN nn	Page number.
*>PR filename	Load printer driver.
*>SM n	Side margin.
>TM n	Top margin.
*>WT text	Wait and display string on screen.
*>>> text	Comment line.

If column one contains '>', and columns two and three each contain one of: space, 'L', '-', or '!' then the line is a ruler line.

**(c) Command Mode**

The commands marked '\*' return you to edit mode.

The commands marked '?' return you to edit mode if they succeed.

Command	Abbreviation	
CAT	—	Catalogue files.
*CLEAR	—	Clear text.
COUNT	—	Count words.
COUNTB	—	Count words in block.
DANISH	DAN	Select Danish characters.
*DOC	D	Select document editing mode.
ENGLISH	ENG	Select English characters.
?FIND	F	Find string.
?FORMAT	FT	Format text.
?FORMATB	FTB	Format block.
FRENCH	FR	Select French characters.
GERMAN	DEU	Select German characters.
HELP	H	Display command summary.
ITALIAN	ITA	Select Italian characters.
LOAD	L	Load new file.
?MERGE	M	Merge file with current text.
MODE	—	Change screen mode.
?MODIFY	MOD	Modify text
?MODIFYB	MODB	Modify text in block.
PRINT	P	Print text.
PRINTB	PB	Print block
PRINTER	PR	Load printer driver.
PRINTF	PF	Print text to file.
PRINTFB	PFB	Print block to file.
PRINTS	PS	Print text to screen.
PRINTSB	PSB	Print block to screen.
*PROG	—	Select program editing mode.
QUIT	Q	Quit PROTEXT.
?REPLACE	R	Find and replace string.
SAVE	S	Save text.
SAVEB	SB	Save block.
SETPRINT	SP	Set print options.
SPEED	—	Set cassette write speed.
SPANISH	ESP	Select Spanish characters.
SWEDISH	SVE	Select Swedish characters.
VERSION	VER	Display version number.

CLR	Clear screen.
ESC	Enter edit mode.

**(d) External commands**

PROTEXT	Enter PROTEXT.
CP	Enter PROTEXT with colours for colour screen.
P	Enter PROTEXT.
P, 1	Enter PROTEXT and switch to mode 1.
PRINTER	Loads printer driver from BASIC.
ROMON7	Turns off all ROMs except disc ROM.

## A.4. TABLE OF ASCII CODES

Code	char	Code	char	Code	char	Code	char
0	NUL	32	SP	64	@	96	`
1	SOH	33	!	65	A	97	a
2	STX	34	"	66	B	98	b
3	ETX	35	#	67	C	99	c
4	EOT	36	\$	68	D	100	d
5	ENQ	37	%	69	E	101	e
6	ACK	38	&	70	F	102	f
7	BEL	39	'	71	G	103	g
8	BS	40	(	72	H	104	h
9	HT	41	)	73	I	105	i
10	LF	42	*	74	J	106	j
11	VT	43	+	75	K	107	k
12	FF	44	,	76	L	108	l
13	CR	45	-	77	M	109	m
14	SO	46	.	78	N	110	n
15	SI	47	/	79	O	111	o
16	DLE	48	0	80	P	112	p
17	DC1	49	1	81	Q	113	q
18	DC2	50	2	82	R	114	r
19	DC3	51	3	83	S	115	s
20	DC4	52	4	84	T	116	t
21	NAK	53	5	85	U	117	u
22	SYN	54	6	86	V	118	v
23	ETB	55	7	87	W	119	w
24	CAN	56	8	88	X	120	x
25	EM	57	9	89	Y	121	y
26	SUB	58	:	90	Z	122	z
27	ESC	59	;	91	[	123	{
28	FS	60	<	92	\	124	
29	GS	61	=	93	]	125	}
30	RS	62	>	94	^	126	~
31	US	63	?	95	_	127	DEL



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