MIRAPRINT

OPERATING MANUAL

Miraprint is a powerful print manager for use with the Amstrad CPC range of computers and 24-pin printers. It offers justification with equal spaces between words (ie with microspacing) and the ability to design and download characters or complete fonts to the printer. The justification controller is memory-resident and can be used as an extension to popular word processors. The sample fonts supplied can also be downloaded independently of the controller, for use with any program.

We recommend you read all relevant sections in this manual before incorporating Miraprint into your system. Extra information is given in the ASCII file README on the disc, which can be loaded into your word processor as a normal text file. Any queries should be sent to the address at the end of this manual, accompanied by a stamped addressed envelope.

In the following notes (and in the programs supplied) reference to the ENTER key means the RETURN key on the CPC6128.

SYSTEM REQUIREMENTS

Printer

Miraprint can only be used with a 24-pin printer which is compatible with the industry-standard Epson LQ range. If your printer is not an Epson model, check the README file first as this contains any information we have on non-Epson printers. Otherwise, consult your printer handbook – it should say if the printer can emulate an Epson LQ printer, or if software using Epson LQ printer drivers is suitable. It may just coyly say "industry-standard", in which case it is almost certainly referring to Epson LQ compatibility. Some printers can emulate several different types of printer and in this case you should make sure that it is switched to the Epson LQ mode.

Even if the printer is supposed to emulate Epson LQ printers, the emulation may not be perfect! The key requirements are as follows:

1. The printer must use standard Epson LQ control codes to access its features. This is unlikely to be a problem.

2. For microspacing, it must be able to set relative dot position in units of 1/180 inch. Furthermore, if you wish to justify proportional characters, the width of each character should be the same as for the Epson LQ printers; this should be the case if the

printer correctly emulates one of the Epson range. If not, a utility called SETWID is supplied so that you can change the Miraprint proportional width tables to suit your printer.

3. For downloading complete fonts, it must have sufficient memory available – at least 5k for a narrow font and up to 7k for a normal one – and be able to download 95 characters. Note that part of the printer buffer is used for this in Epson models but this is by no means universal and it may be necessary to purchase additional memory before any downloading can be done. (Of course there is no need to download a complete font – you can download individual characters or a partial font).

Another more subtle requirement concerns the maximum width of the character data matrix. For Epson LQ printers this is 37 columns of data with extra space permitted on either side. For extra compatibility, the widest characters in the Miraprint fonts are 35 columns of data, with space either side to give 42 columns in total. Check your printer manual which should give the maximum character data matrix (24 by n columns). If your printer does not permit 35 columns, you will find the normal-width fonts supplied are not downloaded correctly. For this reason, we also supply narrow versions of the fonts with the data matrix no greater than 24 by 30 columns. The small fonts are also designed to have a data matrix no larger than 30 columns.

4. When designing characters using the font editor, you will probably want to use the editor to print them out to see how they look. To do this, the printer must have hex-density bit-image graphics (360 dots per inch) available.

CPC printer port
An 8-bit printer port is essential if characters or fonts are to be downloaded to your printer, or if the font editor is to be used to print out fonts. Such a port is NOT required, however, to justify the printer's own fonts.

HOW TO USE THE MENU-DRIVEN PROGRAMS

The following utility programs are very similar in operation: COMPILE, DOWNLOAD, EDITOR, INSTALL and SETWID. Most have a single menu on the opening screen, and a selection can be made with the up/down cursor keys. Press ENTER to confirm the choice.

A box containing a prompt requesting further information may then appear. If the prompt is for a filename, type the filename only, without any extension, eg YORK not YORK.FNT. A drive letter prefix can be used, eg B:YORK. If the prompt is for a character, you can type the character OR the code of the character, but note that single digits will be treated as characters, not codes. For example, if you answer "2", this is equivalent to specifying code 50, which is the ASCII code for it.

If you make a mistake, you can always abandon a procedure by pressing ESC. Sometimes the box may appear with the current value or filename already filled in – if this is what is required, then you simply need to press ENTER, otherwise delete the value, type in the correct one and press ENTER.

Whenever a directory of the disc is shown, it will only list files of the relevant type so, for example, if you request a directory listing when using the font editor, it will only show files with an .FNT extension.

INSTALLING MIRAPRINT

Briefly, the procedure is first to copy the master disc supplied with Miraprint on to a copy disc, and then to use the copy disc to prepare a work disc. These terms really refer to sides of a disc, so the work disc could simply be side B of the copy disc.

1. Format two blank disc sides for use as the copy disc and work disc. Do not use side B of the master disc for this.

2. Using a utility such as CP/M Plus DISCKIT3, copy the master disc to the copy disc, then put the master disc away somewhere safe. NEVER de-protect the master disc or try to write to it.

3. Load and run the Miraprint installation program from the copy disc using RUN "install". Select the appropriate host program from the menu and press ENTER.

A box will appear allowing the current hard-space character code to be changed. As this is not necessary at the moment, just press ENTER to leave it unchanged. You will then be prompted for the filename of the proportional width tables for your printer – just press ENTER to use the standard one for Epson LQ compatibles.

The customized Miraprint controller machine code (filename MPCODE.BIN) and width tables (filename CHARS.WID) will now be saved to your work disc. After completion, you will be invited to press any key, which will reset the computer.

4. If you have an 8-bit printer port, load the software for it and change the last line to RUN "mira". Now save it to the work disc. If you have a CPC464/664 fitted with an additional 64k memory and your host program requires the software supplied with this memory, you could load it and save it to the work disc as well for convenience.

5. Consult the appropriate appendix to determine what, if any, customization your host program requires to control Miraprint. Where appropriate, save it to your work disc. The appendix will also give the correct order of loading the various programs for your particular set-up. We recommend that you change the last line of each program so that it runs the following one. All the programs will then be loaded automatically and in the right order.

LOADING THE MIRAPRINT CONTROLLER

The correct loading procedure for use with commercial host programs is given in the appropriate appendix. Otherwise, the computer should be reset, and then the programs loaded in the following order: additional 64k ram software (if required), 8-bit printer port software (if required), the appropriate Miraprint loader and finally the host program.

Use RUN "mira" to load and run the loader. When it has finished loading the width tables, a message "MIRAPRINT LOADED" is displayed, and you can now load the host program.

USING JUSTIFICATION

Justification is controlled using a special text command which must be the first non-space characters in a line (it can be on its own line or precede text - it will not be printed). It consists of the character "{" (CPC464 users: press SHIFT and [together), followed by a number up to 255. An example is

{75

The number is the justification control which sets the minimum number of characters (including any left-margin spaces) which a line of text must have before justification will take place.

If a line has fewer characters than the justification control, it will not be justified. If a line has as many or more characters than this setting, it will be right-justified with equal spaces between words, ie it will be microspaced. The actual printed width of the column, including left-margin spaces, is the width of a character space in the font selected, multiplied by the justification control.

In the above example, a line 74 characters long would not be justified, whereas a line with 75 characters would be justified. A line of 76 characters will also be justified (to the same width). If the line were to contain even more characters, there would come a point at which there was not enough space in the line for justification to that width - in this case it would be printed without any spaces between words.

All this leads to the following rules:

1. If you do not require justification, set the justification control to be as high as possible so that lines are always shorter than it. You could use "{255" which is the maximum value.

2. If you require justification, ensure that the word processor or other host program right-justifies text with character spaces when printing, and set the justification control to the number of characters in the column plus any left-margin spaces. For example, if your screen text width is 70 columns and five extra spaces are

being added in the left margin on printing (which is how Protext is set up by default) the justification control would be 75.

3. The width of the justified column can be slightly reduced by specifying a smaller justification control than that calculated above, but if it is reduced too much, some lines will end up without any space between words.

One very important point, which also applies to downloading, is that you must ensure that any commands to the printer which might affect justification, eg setting it to 12 characters per inch or changing the font to proportional, are carried out using software and not via the panel switches on the printer or printer macros, otherwise Miraprint will not know the current printer mode. In some printers, proportional fonts may have to be selected using panel switches – in this case ensure that the word processor sends the codes for the correct mode to Miraprint, even if the printer does not make use of them.

Printer control codes in the text do not affect justification, except for horizontal tab (code 9) which switches it off. However, if they occur in front of leading spaces, the latter will be incorrectly printed as interword spaces. Either replace the spaces with backslashes (see below) or move the control codes right to the start of the text on that line.

When justifying, Miraprint normally inserts an equal number of 1/180 inch spaces between words. However, the maximum number is 254 (when being used with an 8-bit printer port), corresponding to about 1.4 inch – lines which would need larger interword spacing are assumed not to require this type of justification and are printed with character spaces. Without a printer port the maximum number is 127 (about 0.7 inch).

Since Miraprint justifies the actual output to the printer, rather than the characters displayed on the screen, it can, for example, cope with redefined characters or even mail-merged text.

NOTE: Some word processors can microspace text themselves. Ensure that this is switched off when using Miraprint or it will clash.

Justification of fixed-pitch fonts
Miraprint can microspace fonts of 10, 12 and 15 characters per inch automatically – double-width, superscript, subscript and condensed mode will also be automatically justified, but the accuracy may be inferior with condensed mode. As mentioned above, be sure to set the printer mode using software and not by panel switches.

Justification of proportional fonts
This is controlled in exactly the same way as for fixed-pitch fonts. However, Miraprint needs to know the width of each character in the printer's font – this information is contained in the proportional width tables.

The installation program creates the width tables on the work disc with the filename CHARS.WID. The values in the tables are in 1/360 inch units and are correct for the Epson LQ550 set up for the

UK character set, with character codes over 127 from the Epson graphics character set. They should be valid for all Epson models.

The Epson graphics set is the same as the IBM extended character set. If you need to switch your printer into IBM mode to print one of these characters, make sure that you return to Epson mode immediately to avoid any control code compatibility problems.

If you have another make of printer and you find that the justification of proportional fonts is poor with Miraprint, it may be because the width tables are wrong for your printer. The first step is to find the correct values, which should be listed somewhere in your printer manual. If not, your dealer or the printer manufacturer may be able to help. Failing this, the following method will have to be used.

Determining proportional widths. This involves printing each character 45 times and measuring the width of the line, in order to get the width of each character. The simple BASIC program FINDWID will do the printing for character codes 33-126 (both normal and subscript characters) and can easily be changed to print up to code 254 if necessary. Ensure the printer is ready and then do RUN "findwid". After printing has finished, measure the width of each line in inches and multiply it by eight to get the width of a single character in 1/360 inch units. For example, a line 3.75 inches long means that the characters are 30/360 inches wide. Each value should be rounded off to the nearest whole number. Make a note of each one. The only character which cannot be measured is a space. You will probably find, however, that the digits 0-9 all have the same width - make the space width the same as these. In practice, you will not need to measure each line as many characters will have the same width. Also, the subscript characters are normally two-thirds the size of normal ones.

Altering the Miraprint width tables. This is done using a program called SETWID. To use it, reset the computer and do RUN "setwid". A single menu will appear. Insert your work disc and select "Load tables" to load CHARS.WID. After they have loaded, select "Edit normal table" to edit the widths for normal-sized characters. The values for character codes 32-127 are shown and you can select any code using the up/down cursor keys. Press ENTER and you will be prompted for the new value. When you have finished, you can return to the main menu using ESC, and repeat for the subscript/superscript tables. Finally, select the "Save the tables" option and resave the tables to your work disc.

Other features

Backspacing. Characters formed from two characters with a backspace (code 8) between them will still be correctly justified, but may be incorrectly letterspaced unless they are of equal width, which is only likely with fixed-pitch fonts.

Hard spaces. Sometimes it may be necessary to have one or more of these in a justified line to assist formatting, where tabbing is

inappropriate. For example, some people prefer to have extra space after full stops. These can be specified by means of a backslash character ("\" which is code 92). If you wish to print the backslash, transfer it elsewhere in the font using the font editor, or assign the hard space to another code using INSTALL.

Getting started – a test print
Test files are supplied so that you can check Miraprint justification is working correctly on your printer. Reset the computer and load the Miraprint controller and your word processor. If you are using Protext, load text file TESTJUST.PRO; if you are using Tasword, load file TESTJUST.TAS. Now print the file – you should see that the uneven spacing of words on screen has been equalized on the printed copy.

If the test is unsuccessful, consult the fault-finding guide in the README file. If it is successful, place a printer control command at the beginning of the document which switches the printer into proportional mode, and repeat the printing.

DOWNLOADING CHARACTERS

The first thing to do is to make sure that your printer is set up for downloading. In some printers, a part of the buffer is used for this, and you will probably have to set a DIP switch to enable this option. Note that this will often considerably reduce the size of the printer buffer, typically from 8k to 1k.

When the printer is switched on, the area of its memory set aside for download characters (called character RAM) is blank – any attempt to print using it will not produce any output. In contrast, the printer's own fonts are stored in read-only memory (ROM) and are always available, though they cannot be modified.

Before describing how Miraprint handles downloading, it will be helpful to summarize the "textbook" procedure, based on the way that Epson LQ printers work, which should be applicable to other models. Your printer manual should be consulted for more details.

To download characters, you must first set the printer into the same mode as the font you wish to download. For example, if you wish to download a proportional LQ font, you must set the printer to LQ mode, and then to proportional pitch by means of the following ESC code sequences:

    ESC x 1 (set LQ mode)
    ESC p 1 (set proportional mode)

Unless you are downloading a complete font, a good idea is then to copy one of the printer's own fonts to the character RAM. This is so that the characters which are downloaded will replace the corresponding ones in the printer's font, and you can leave the character RAM font switched in all the time. If you did not do this, you would have to switch the character RAM font in and out

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every time you wished to use the downloaded characters. The following sequence copies ROM font n to the character RAM:

    ESC : 0 n 0

The downloading of characters n1 to n2 can then take place using:

    ESC & 0 n1 n2 data1 data2 data3...

The characters are now in the printer's character RAM but cannot be printed until the character RAM font is selected with:

    ESC % 1

You can see that quite a few codes have to be sent to the printer, but Miraprint makes this procedure as simple as possible by using download files to do the hard work.

Download files
These are special ASCII text files containing representations of printer control codes and character image data which the Miraprint controller converts into binary codes for the printer. Assuming the controller is loaded, you simply load the download file as a text file into your word processor and print it. The correct codes will be sent to the printer without any carriage returns (except for one final one) or form feeds, but the paging will be affected if the file is part of a document. At the same time, the width tables in the controller will be updated with the new character widths so that the download font can be justified properly by Miraprint.
The files send the codes to switch the printer into letter-quality mode, proportional mode, then to copy ROM font n to RAM, and finally to download the actual characters. They do not send the codes to select the character RAM (because you may not wish the downloaded font to be selected immediately) - you will have to get your word processor to do this, ie send codes ESC % 1 (27 37 1).
There are two types of download files. The normal type can be used by any word processor that can load ASCII text files, and has the filetype extension .NDF. There is also a special type for Protext which has the extension .PDF (see Appendix 1).

Compiling download files
Download files are compiled from font files using the program COMPILE, which is loaded using RUN "compile". The font containing the character(s) to be downloaded is loaded and then either a normal or Protext download file can be compiled.
The first set of prompts allow the whole or just part of the font to be compiled - if the whole font is required, set starting character to 32 (space) and finishing character to 126 (tilde). If you just wish to download a single character, make the start and finish characters the same (remember that either the code or the character can be typed in response to the prompts). You will also be prompted for the number of the resident font that will be copied

from ROM to RAM to be overwritten by the downloaded characters. If your printer has only one letter-quality, proportional font or you are in any doubt then answer 0.

You will then see a disc directory of the type of file you are about to save, followed by a prompt for the filename. Just press ENTER if you wish to use the same name as the font file.

If you inspect download files, you will see that they are in a sort of code, rather than pure hex, which has been done to make them shorter. Do not attempt to edit them in any way. Note that the exclamation mark at the beginning of a line is used to signal a download file - you should therefore ensure that your documents do not contain them in this position or strange effects will occur!

The Miraprint fonts
The eight fonts are based on two typefaces (Senator and York) in four sizes. The small fonts (filenames xxxxMINI.FNT) can used for footnotes etc. The narrow fonts (filenames xxxxNARR.FNT) are versions of the standard fonts restricted to a maximum data width of 30 dots to comply with the requirements of certain printers, but could also be used where a more condensed style is required, eg for narrow columns. The standard fonts (filenames xxxxxxxx.FNT) have a maximum data width of 35 dots. The headline fonts (filenames xxxxHEAD.FNT) are intended for headings and are slightly taller than the standard fonts and much bolder, although the maximum data width is still 35 dots. All eight fonts are shown below (you can print out the full character sets using the font editor).

NOTE: more fonts will be available soon - contact us for details.

Senator Small	York Small
Senator Narrow	York Narrow
Senator	York
Senator Headline	**York Headline**

Getting started - a worked example
Let's suppose that we wish to download the complete small York font, which has the filename YORKMINI.FNT.

1. Reset the computer and run COMPILE. Select the "Load font" option and load YORKMINI. Now insert your work disc. Select the "Compile normal download file" option - answer "32" to the "starting character" prompt and "126" to the "finishing character" prompt, which means the whole font will be compiled. As we are compiling a whole font, we are overwriting all the character RAM so which ROM font we are overwriting is academic in this case - therefore just answer "0" to the next prompt. You will now be presented with a directory of any NDF files on the work disc and a prompt for the filename - just press ENTER and the download file will be compiled to disc as YORKMINI.NDF.

2. Reset the computer, then load Miraprint and your word processor. Load YORKMINI.NDF as a normal text file and print it.

This will take up to half a minute - nothing will be printed but you may see the printer's READY light flickering as data is sent.

3. Now load a sample text to be printed (TESTJUST.PRO or TESTJUST.TAS will do nicely). Place a printer control character to switch the printer into proportional mode at the beginning of the document. Now define another control character to send the codes to select character RAM (27 37 1) and place this after the one selecting proportional mode. Print the document and you should see that it is printed in the small York font and right-justified.

Downloading fonts direct
If you wish to justify downloaded fonts, it is essential to download them using the Miraprint controller so that the width tables are updated with the correct values.

However, if you do not require justification or you wish to download characters for use with a program other than the ones catered for by Miraprint, it is possible to send a download file direct to the printer without loading Miraprint. The program DOWNLOAD is provided for this purpose. When run, it prompts for the filename of the download file (only NDF files can be used - the filename extension is not required as usual). Note that DOWNLOAD does not require 8-bit printer port software - it contains routines for the KDS Electronics Mk2 (or later) port. If you have another port, contact us for advice.

Once the characters are downloaded to the printer, you can reset the computer and load any program you like. Remember, to use the downloaded font, switch character RAM in with codes 27 37 1 (in BASIC use PRINT #8,CHR$(27);CHR$(37);CHR$(1) to do this).

Partial fonts
You can download any number of characters, from one to a complete font. If your printer has a limited amount of memory for downloading, a possible solution is to download only the capitals and small letters, and rely on the font you copy from ROM to RAM for punctuation etc. If your printer has several resident fonts, you may be able to find one that matches quite well.

To do this, compile the small letters first, then the capitals. Remove the THIRD line of the second file (the "copy ROM-to-RAM" command) to stop earlier data being overwritten, and merge the two files using your word processor to form a single download file.

FONT EDITOR

This program allows you to redefine any Miraprint download character or font to suit your own purposes, or even to have fun designing a completely new font!

Using the editor
To load the editor, do RUN "editor". After loading is complete, a menu is shown with the following options.

Directory
This gives a list of all fonts present on the disc, ie it gives a directory of filenames with the .FNT extension.

Load a font
This option loads a font ready for editing. It will prompt for a filename (the .FNT extension is NOT required).

Edit a character
After prompting you for the character to be edited, it will show its image on a reference grid with a flashing cursor. The current character (from the Amstrad CPC character set), code and width are displayed alongside the grid, together with a command summary.

Since Epson LQ printers don't allow horizontally-adjacent dots to be printed in hex-density characters, adjacent dots cannot be set.

An increase or decrease of width will resize the grid accordingly. The minimum width is 4, the maximum 42. The width should be an even value for correct justification (odd values will generate an "Odd width" error message on exit).

The maximum data width (ie the number of columns from the leftmost dot to the rightmost dot inclusive) is 37. This conforms with the requirements for Epson LQ printers but may be smaller in the case of your printer, in which case you will have to take care not to exceed it. Data widths in excess of 37 columns will generate an "Image too wide" error message on exit.

The whole image can be moved in four directions, allowing easy centring. As dots moved over the perimeter of the grid are lost, this is also a convenient method of partly deleting a character.

Individual lines can be moved left or right.

The image can be transferred to another character so that, for example, a modified character can be quickly designed to replace one of the rarely used ASCII characters.

If you are unhappy with a changed image and don't wish to update the font, it can be restored by pressing the R (restore) key.

The N (next character) command makes it easy to move through the font without returning to the main menu. The new image is only written to the main font when the N or ENTER keys are pressed.

If the amount of memory available for the font is exceeded by the new character an "Out of memory" error message is given upon exit.

Print the font
This option prints out the whole font on two lines as a test, using hex-density (360 dots per inch) graphics. Check that your printer has this graphics density available before using this option. The program does not require 8-bit printer port software - it has built-in routines for the KDS Electronics Mk2 (or later) port. If you have another port, contact us for advice.

Save the font
This option saves a font to disc. It will prompt for a filename. If this is the current one, ie the one shown at the top of the screen, then simply press ENTER.

Hints on character design

Consistency in character design is essential. Before starting to create characters, you must decide how they are going to fit into the reference grid and stick to this plan. The top and bottom of each character should be on the same grid line throughout – the marks alongside the grid show the top and bottom of characters as recommended by Epson. The two rows above the top mark are for ascenders in letters such as "l"; the five below the bottom mark are for descenders in letters such as "y". All lower-case letters such as "a" and "c" should be the same height.

The amount of space each side of the character should be approximately equal, ie the image should as far as possible be centralized. The minimum clearance between characters should not usually be less than six dots if emphasized mode is to be used, ie three dots either side. With proportional characters the width of the grid should be adjusted so that side spaces are constant.

Try to achieve the same shape for similar letters, eg "c" and "e" (the easiest way to do this is to define a letter such as "o" as the "base" of this type of letter and then transfer it to "c" and "e" etc for modification using the TAB key). Study the fonts supplied to see how this is done, and how lines of varying slopes and curves are created. Remember that the eye is very critical of curves which are not smooth. To achieve this you may need to leave a small gap between dots on the screen although, because printed dots are much larger than screen dots, this may not matter in normal and condensed modes.

The successful design of a whole font requires time, patience and some experience with the font editor. Start out by just modifying a character in an existing font.

APPENDIX 1. PROTEXT

Disc Protext and rom Protext without Promerge Plus

Installation. If you have an unexpanded CPC464 or CPC664 the standard version of the loader program should be loaded from the copy disc with LOAD "mp64". Add a new line 1000 ¦P if you have rom Protext. Save to your work disc with SAVE "mira".

If you have a CPC6128 (or a CPC464/664 with 64k extra ram) you can use the 128k loader, which does not reduce the amount of memory free for text. Load it with LOAD "mp128". Add a new line 1000 ¦P if you have rom Protext. Save to your work disc with SAVE "mira".

Loading procedure. Reset the computer first. Now load and run your 8-bit printer port software (if applicable), and finally the Miraprint loader, after which you can load Protext. This is done automatically in the case of rom Protext. (Note: MP128 does not require additional 64k ram software on expanded CPC464/CPC664s).

Note that early versions of disc Protext (those without the file DISC2.BAS) must be loaded first. QUIT to BASIC and load the 8-bit software and Miraprint and return to Protext. You can make this automatic if you include a line 1000 ¦P in the Miraprint loader.

Rom Protext with Promerge Plus
Installation. Load the special loader with LOAD "mppm" and save with to your work disc with SAVE "mira".

Loading procedure. Reset the computer and run your additional 64k ram software and/or 8-bit printer port software (if applicable), then the Miraprint loader, after which Protext will be entered automatically.

Restriction. Background printing is inoperative, although this may not matter if your printer has a large buffer. If you really need to use this feature and do not require justification, download the font with DOWNLOAD instead of the Miraprint controller.

Hints and tips
Sending codes. When you need to send codes to control font selection etc, it is usually more convenient to use the >OC (output code) stored command rather than defining printer control characters. Generally, it is best not to place this on a line immediately above a Miraprint justification control or the latter may not be executed.
    If this method is not suitable for your application, you will need to define unused printer control characters using the Protext command SETPRINT, and use them at appropriate places in your text. For example, to select character RAM you can use a control character which you have previously defined to give codes 27 37 1 (codes for on) and 27 37 0 (codes for off). After defining the character, save the Protext printer driver using the option provided in SETPRINT. You will need to load this printer driver into Protext each time you use Miraprint with the Protext command PRINTER <filename>, and to use the control character as required.

Normal download files. These will change Protext to program mode when loaded in, as they are pure ASCII files, and are best printed in this mode, but remember to change Protext back to document mode before printing out your text. Do not set Protext to print headers, footers or page numbers when printing NDF files in document mode.

Protext download files. These consist of printer commands in the form of >OC stored commands. The advantage is that this type of file can be printed out as part of a document without upsetting its paging, allowing you to download fonts dynamically while printing a paged document! The Promerge Plus stored command >IN <filename> will print a file off the disc and can be used for this purpose. For example, the following file will print first in the York font and then in Senator.

    >in york.pdf
    >oc 27 % 1
    This is printed in the York font.
    >in senator.pdf
    This is printed in the Senator font.

The disadvantage of PDF files is that they are much larger than NDF files and correspondingly slower to download. Note that Protext must be in document mode when printing out PDF files or the >OC commands will not work.

Interrupting a print. Protext does not send a carriage return to the printer if printing is interrupted in the middle of a line, so it is possible that unprinted text could be left in the Miraprint buffer. This should be cleared before another document is printed, otherwise it will precede the latter. Either return to BASIC using the QUIT command and do PRINT #8 or, in the case of Promerge Plus, enter typewriter mode and press ENTER.

APPENDIX 2. TASWORD

Advanced Amsword, Tasword 464 and 464-D
Installation. If you have an unexpanded CPC464 or CPC664, the standard version of the loader program should be loaded from the copy disc using load "mp64". Add a new line 1000 RUN "tasword" and save to your work disc with SAVE "mira".

If you have a CPC6128 or an expanded CPC464/664, you can use the 128k loader, which does not reduce the amount of memory free for text. Load it with LOAD "mp128", add a new line 1000 RUN "tasword" and save to your work disc with SAVE "mira".

Load Tasword, return to the main menu, and select option C (customize program), then select the "define printer control characters" option. Define two unused printer control characters to give codes 27 37 1 (select character RAM) and 27 37 0 (select character ROM). Return to the main menu and save Tasword to your work disc using option T (save Tasword).

Loading procedure. Reset the computer, then load your 8-bit software (if applicable), then the Miraprint loader. After Miraprint is loaded, it will load Tasword automatically. (Note: MP128 does not require additional 64k ram software on expanded CPC464/664s).

Tasword 6128
Installation. The special loader program should be loaded from the master disc using LOAD "mptw6128" and saved to your work disc with SAVE "mira".

Load Tasword (note that this must not be a copy which you have modified to include the PRINTEPS program on the Tasword disc). Now return to the main menu and exit to BASIC. Add a line

    155 RUN "mira"

RUN Tasword, return to the main menu, and select option C (customize program), then select the "define printer control characters" option. Define two unused printer control characters to give codes 27 37 1 (select character RAM) and 27 37 0 (select

character ROM). Return to the main menu and save Tasword to your work disc using option T (save Tasword).

Loading procedure. Reset the computer, then load your additional 64k ram software and/or your 8-bit printer port software (if applicable). Load and run Tasword, which will load and run the Miraprint loader, and finally re-enter Tasword.
   The Miraprint code is stored on the RAM disc, decreasing the amount of free space for text to approximately 60k. Do not load Miraprint with text present to avoid any possibility of text loss.

Hints and tips
Zero justification control. If a justification control of zero is used with Tasword, Miraprint will automatically sum the current left margin on printing and the screen width to arrive at the correct justification control.

Printing an NDF file. Although Miraprint will ignore carriage returns, formfeeds and linefeeds when an NDF file is printed, headers, footers and page numbering should be switched off.

Using multiple fonts. In the case of Tasword 464-D and Tasword 6128, this can be automated by printing text and download font files from disc, for example as in the following print file:

```
$
yorkhead.ndf
text1
senator.ndf
text2
```

Remember that text1 must select character RAM so that the downloaded font is used. Although the download file only prints one linefeed, the paging will be affected, making this method only suitable for unpaged documents.

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