

QUALITAS PLUS

OPERATING MANUAL

VERSION 2

Qualitas Plus is a powerful print enhancer for use with the Amstrad CPC range of computers which offers a choice of five near-letter quality (NLQ) fonts suitable for everyday word processing. Each font can be modified or new fonts designed using the font editor, and each can be printed in several different modes.

Qualitas Plus can be used with popular word processors for the CPC, with certain other programs such as Masterfile III, and also with the user's own programs. It has been designed for use with a wide variety of printers and CPC systems of varying levels of sophistication, in order to use the available features to the full.

We recommend you read all relevant sections in this manual before incorporating Qualitas into your system. Extra information is given in the ASCII text file README on the disc (README.DOC for Mini-Office II). Any queries should be sent to the address at the end of this manual, accompanied by a stamped addressed envelope.

Extra fonts are available to extend the versatility of your Qualitas system. There is also an extension available which allows Qualitas to run under CP/M Plus. Contact us for further details.

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

INSTALLING QUALITAS

Before Qualitas can be used, a work disc must be prepared, containing the Qualitas loader, the Qualitas machine code customized for your set-up, and one or more of the fonts you wish to use, all on the same side.

The Qualitas loader is a short BASIC program which is used to load the Qualitas machine code and one or more fonts which you have selected. Seven different versions are supplied.

The standard version for the unexpanded CPC464 or CPC664, filename QUAL64, lowers HIMEM to accommodate the Qualitas machine code and fonts. Normally this means that the host program (ie the word processor or other program you are using to send output to Qualitas) will have a reduced amount of memory available - 7k less with one font loaded and 5k less for each additional font. In some cases this may restrict the number of fonts which can be loaded to two or even one.

If you have a CPC6128 (or CPC464/CPC664 with an additional 64k ram), you may prefer to use the 128k version, filename QUAL128. This stores the Qualitas code and up to three fonts in the extra 64k of ram so that the program takes up no main memory from the host program. (Additional 64k ram bank software is NOT required if this loader is used.) In theory, use of this loader means that Qualitas can be used with any host program which does not make use

of the extra 64k. In practice, some potential host programs may be designed to foil copying or otherwise reset the operating system in such a way as to make Qualitas operation impossible.

The other five loaders are for use with specific commercial host programs, and are described in the appropriate appendices.

The Qualitas machine code is the program which performs all the NLQ printing. It is resident in memory alongside the host program and intercepts all output from the latter to the printer. It can be set up to suit different printers and host programs using a separate customizer program supplied.

The fonts are the different typesstyles which Qualitas uses to print in NLQ. Classic Pica is a general-purpose font based on the classic typewriter style, with a pitch of 10 characters per inch. Classic Elite is similar, with a 12 cpi pitch to suit narrower writing paper or letterhead. Mercury is a typical electric typewriter style with a more modern appearance; pitch is 10 cpi. Piazza is an italic font ideal for less-formal letters or to give emphasis to a paragraph; pitch is 12 cpi to suit narrow personal letterhead. Clarion is a proportional font (ie the characters are of varying widths) which gives documents a "typeset" appearance. A sample of each font is printed on the back of the Qualitas box.

Each font contains the full 96-character ASCII set, except that code 35 gives a pound sign, not a hash, and code 127 gives a copyright symbol. You can easily modify any font using the font editor (see later) if, for example, you wish to print a hash sign with code 35 instead of a pound sign. Code 127 (and 126 on some word processors) cannot be placed in the text file - simply arrange your word processor to substitute this code for one of the other ASCII characters when it prints if you wish to print, say, the copyright symbol.

Both 7-bit and 8-bit versions of the fonts are supplied (8-bit fonts are for use with an 8-bit printer port (see Appendix 1), 7-bit fonts are not quite as tall as 8-bit fonts - in practice there is little difference in the ones supplied except that in the 8-bit versions numbers are more ornate in Classic Pica and Elite and letters have better descenders in Clarion and Mercury).

Prepare your work disc as follows:

1. Format a blank disc for use as the work disc. Do not use side B of the master disc for this.
2. If you have an 8-bit printer port, load the software for it and 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.
3. Load and run the Qualitas customizer and the machine code using RUN "custom". Use the option menus displayed to customize the Qualitas machine code to suit your host program, printer and operating conditions.

The first menu asks you which host program you are using. Provision is also made for you to set the code up for use with your own programs in "stand-alone" mode.

The second menu asks you to select the type of printer in use - if in doubt choose the Epson option. Only choose the Star printer option if you have one of the older models, eg the Gemini or SG10. Some more-recent Star printers are capable of operating in both Epson and Star modes - choose the appropriate option to suit the mode you are using if you have one of these printers.

The third menu asks you whether you have an 8-bit printer port fitted (see Appendix 1 for further details of this optional extra).

The fourth menu allows you to change some miscellaneous standard settings - normally you can just select the "Save Qualitas" option. However, if you have set your printer to give an auto-linefeed after a carriage return, you must inform Qualitas by selecting the option provided. Other options allow you to change the standard settings of graphics codes, linefeed codes, and ESC sequence lengths. This will normally only be necessary if you have a very non-standard printer or wish to "fine-tune" the system. Further information is given in Appendix 1. You can also redefine the hard-space character and the switch-on/off codes; these are explained later in this manual and can be left alone initially.

4. The next screen prompts you to insert your work disc so that the Qualitas machine code (filename QCODE.BIN) can be saved to it.

5. The final menu allows you to transfer the Qualitas fonts off the Qualitas master disc onto your work disc. Four different types of the five fonts are supplied: Epson-type quadruple-density and Shinwa-type double-density in both 7-bit and 8-bit versions. The correct type will be saved according to the options you have previously selected. Just follow the on-screen instructions.

6. You will now have been returned to BASIC, and you can put the master disc away somewhere safe.

Consult the appropriate appendix to determine what, if any, customization your host program requires to control Qualitas. 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.

USING QUALITAS

Loading Qualitas

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 Qualitas loader and finally the host program.

Use RUN "qualitas" to load and run the loader. It will do a disc catalogue, then prompt you to select the font(s) you require. When typing the filenames, there is no need to add ".bin". Usually, up to three fonts may be loaded but this depends upon your set-up (see the appropriate appendix). Just press ENTER after the prompt if you do not wish to load a second or third font. Once the fonts are loaded, a message "QUALITAS LOADED" is displayed, and you can now load the host program.

Getting started - a test print

With both Qualitas and the host program loaded, try typing

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{zThis is a test of Qualitas
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and then printing it (the significance of the "{z" is explained below). You should find that "This is a test of Qualitas" is printed in the main font that you loaded. Now try typing

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↑zThis is a test of Qualitas
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and then printing it. You should find that it is printed in the main font in double height. If these tests are not printed correctly, refer to the trouble-shooting guide in the README text file on the master disc (README.DOC in the case of Mini-Office II).

Switching Qualitas on

After loading, Qualitas remains dormant until it is turned on by a switch-on code ("z" and "↑z" in the above examples). Normal-height mode is turned on by "x", where "x" is a character which controls micro-justification (see below). Double-height mode is similarly turned on by "↑x" (it cannot be mixed with normal height on the same line). Either mode is turned off by "}" or by the switch-on code for the other mode. These codes must be the first non-space characters in a line. They will not be printed, and will not affect the justification of the line where they are present.

While Qualitas is switched on, printer control codes which are not valid Qualitas codes will be ignored and not sent to the printer. While Qualitas is switched off, all the printer's normal fonts and features are accessible via the usual control codes, which have no effect on Qualitas (except for the codes 27 51 n which set linefeed to n/216 inch on both the printer and Qualitas).

The ability to switch Qualitas on and off gives great flexibility in printing a document. You could, for example, print your letter heading in Clarion and then revert to your printer's normal NLQ font for the rest of the text, giving the impression of a printed letter heading.

If, for any reason, these symbols are not suitable for use with your host program or documents (eg printing C programs!) they can be changed to other characters using the customizer program (or even to codes below 32 - see the README text file).

Some word processors can "spool" text for printing so that the editing of further documents can take place while this text is

being printed. Due to the amount of processing required when printing a Qualitas line, it is not possible to do it as a background task, and you should therefore ensure that print spooling is switched off while Qualitas printing is taking place.

Justification

This is controlled by the character "x" which follows the switch-on character. This justification control sets the minimum number of characters (including any left-margin spaces) which a line of text must have before justification will take place.

Its value is the ASCII code of the character. For example, characters "{H" at the beginning of a line would turn Qualitas on in normal-height, setting the justification control to 72 characters, because 72 is the ASCII code for "H". The text character with the lowest ASCII code is a space, code 32, and the one with the highest code that most word processors can send is "}" , code 125. This range 32-125 is quite adequate for most documents - if you wish to send codes outside this range you will need to use a special word processor command to send these codes or define a printer control character. A full list of characters and their ASCII codes is given in your computer manual but here are a few useful ones:

35 = "#", 40 = "(", 45 = "-", 50 = "2", 55 = "7", 60 = "<",
65 = "A", 70 = "F", 75 = "K", 80 = "P", 85 = "U", 90 = "Z"

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 micro-justified. 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 71 characters long would not be justified, whereas a line with 72 characters would be justified. A line of 73 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 abandoned and the line printed "as is".

All this leads to the following rules for controlling justification.

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 "{}" for most documents ("}" is code 125). If you need higher values than 125 you will have to get your word processor to output the appropriate code (up to 255) using a printer control character or special command.

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, the justification control would be 75 (ie you would use character "K").

Some word processors can micro-justify text themselves. Ensure that this is switched off when using Qualitas or it will clash.

Printer control codes in the text do not affect justification. 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, Qualitas normally inserts an equal number of dot spaces between words. However, the maximum number is 254, corresponding to just over one inch in quad-density - lines which would need larger interword spacing are assumed not to require this type of justification and are printed with character spaces.

Since Qualitas 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.

Print modes

Condensed, emphasized, enlarged, subscript, superscript and underlined printing are possible, using the standard Epson printer control codes given in Appendix 2, which makes it generally compatible with the same text printed in draft form, except enlarged mode is not self-cancelling after a linefeed. Modes can be mixed with some restrictions, eg condensed, subscript and superscript modes are ignored in double-height.

Justification is maintained even when varying modes are used in a line, provided there is sufficient space. However, if a paragraph is printed in condensed mode with the same number of characters in the column and the same Qualitas justification control as previous paragraphs, the spaces between words will be too large and the left margin too far to the left. If you wish to print the paragraph with the same margins as the others, use lines longer than the Qualitas justification control to absorb the surplus interword space, and indent the paragraph to align the left text margin.

Printing in the second or third font

Up to three fonts can be present, depending upon the host program and which loader you are using. When Qualitas is switched on, the main font is selected. If a second font is present, it can then be switched in and out by the Epson codes for italics (see Appendix 2). Sometimes, however, the second font may be used for accented characters (eg the Tasword 2nd character set) which your word processor can display on-screen, rather than italics, and it might be inconvenient to keep switching this font in and out just for individual characters. The screen might also get cluttered with control characters. For this reason, the second font can also be printed directly by the character code plus 128, eg "A" can be

printed by code $65 + 128 = 193$. If you are using Tasword, you will need to define the 2nd character set print characters accordingly.

If a third font is present, it can be switched in and out using the Epson codes for double-strike (see Appendix 2). It is most convenient to use this font for headings as it is then compatible with draft mode.

Formatting

Tabbing. When a proportional font such as Clarion is used with tabular material, it will be noticed that the columns no longer line up as they did on screen, due the varying widths of the characters. This can be overcome by using the Qualitas tabbing facility, which is very similar to the tabbing facility built in to most printers and is completely independent of the screen tabbing of word processors. In this system, use of the standard Epson horizontal tab code (code 9) causes printing to continue at the next tab position and switches off justification for that line.

When Qualitas is switched on, the tabs are set at every eight characters from the printer's left margin, but can be changed using the Epson codes shown in Appendix 2, which must be terminated with a zero as shown to mark the end of the sequence. For example, codes 27 68 10 20 30 40 0 would set tabs at columns 10, 20, 30 and 40. Up to 16 tabs can be set, and this setting is valid until Qualitas is switched off or another tab setting is issued. The positions of tabs are absolute and are the product of their character position and the width of the character space in the font being used at the beginning of the line. Subsequent changes of print mode in a line do not affect the tab positions.

In practice, this feature is used as follows. Define a printer control character to send code 9 and another (or more than one if there are lots of tabs) to send the tab set-up codes. Position the tab set-up codes in the document at a point after Qualitas is switched on. Then position the tab printer control characters where required. It is simpler to use tabs if there are no spaces between columns, just the tab printer control character. However, if you require screen spaces between columns, ensure that the tab is placed at the start of each column, and not at the end of the preceding column.

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 character corresponding to code 92, you can transfer it elsewhere in the font using the font editor, or the hard space can be assigned to another code using the customizer program.

Vertical lines will have gaps when the normal 1/6 inch line spacing is used. These can be closed up by decreasing the linefeed to 21/216 inch in 7-bit mode or 24/216 inch in 8-bit mode using the Epson codes for n/216 inch line spacing shown in Appendix 2.

Print quality

The appearance of each font may vary with different printers, and especially with the printer ribbon, impact force, and the paper used, so some experimentation is advisable. If you are using Qualitas to prepare artwork for reproduction, best results will be obtained with a good-quality nylon ribbon and matt coated paper.

Qualitas works by using very small linefeeds (see Appendix 1) and their accuracy is poor on some printers, especially on the first line as the slack in the roller/paper system is taken up (a tip is to always do a blank line before printing text). However, if you find characters such as "O" are consistently flattened or vertical lines are "dotty", indicating insufficient first linefeed, try increasing it to 2/216 inch, using the customizer's "Set linefeed codes" option. However, this could also be caused if you have set your printer to do an automatic linefeed on receipt of a carriage return and you have not customized Qualitas for this option.

FONT EDITOR

This separate program allows you to redefine any Qualitas character to suit your own purposes, eg as an accented character, or even to have fun designing a completely new font! It can be used to edit both double- and quad-density fonts - the mode is set automatically from the font.

Reset the computer, load and run your 8-bit printer port software (if applicable), and then the editor using RUN "editor". After loading of the BASIC and machine code is complete, a menu is shown with the following options.

1. Load the main font

This option loads a font as the main font, ready for editing.

2. Load a second font

This option loads another font so that images can be imported from it into the main font.

3. 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. This grid is different for double- or quad-density editing. The current character (from the Amstrad CPC character set), code and width are displayed beneath the grid. A full list of available commands is shown to the left of the grid.

The "Clear grid" command lets you see the character without the distraction of the grid and cursor. Pressing any key will restore them.

Since the Epson RX-80 and compatibles do not allow horizontally-adjacent dots to be printed in quad-density bit-image mode, adjacent dots cannot be set when in this mode.

An increase or decrease of width will resize the grid accordingly. The minimum width is 3, the maximum 32 in quad-density or 24 in double-density.

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 which is very useful for italicization.

The image can be transferred to another character so that, for example, an accented character can be quickly designed to replace one of the rarely used ASCII characters. Alternatively, an image can be imported from the second font if present.

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 G (go to character), L (last character) and N (next character) commands make it easy to move around the font without returning to the main menu. The new image is only written to the main font when the G, L, N or ENTER keys are pressed. If the amount of memory available for the font (96 characters of 24 dots width) would be exceeded by the new character, an error message is given.

It is sometimes useful to have a printed screen copy of the character and grid for later reference. A few copies of a blank grid are also handy for designing characters. This option is offered upon exit from the character editor. Some customization of the BASIC may be necessary for your printer (see below). As supplied, it is set up for the Epson RX-80 and compatibles.

4. Print the character set

This option prints out the whole font on two lines as a test. Some customization of lines 500-900 of the program to suit your printer may be necessary. As supplied, it caters for the Epson RX-80 and compatibles, but the following notes will help you change it to suit your system. Consult your printer manual if in doubt.

Line 500 should switch your printer into quadruple-density bit-image mode (if available), while line 550 should switch it into double-density mode. Variables a and b are used for n1 and n2. Line 500 may require the "Z" changed to "z" for older Star printers.

Line 600 should set line spacing to 1/216 or 1/144 inch, and line 700 should set the normal line spacing less the linefeed carried out in line 600. Users of those printers which do 1/144 inch line spacing should change line 700 to set 23/144 inch line spacing.

Line 800 should set normal line spacing, normally 1/6 inch, ie 36/216 inch (or 24/144 inch for older Star printers).

Line 850 should set line spacing to 4/72 inch.

Line 900 should execute a linefeed and carriage return; delete the CHR\$ 10; part of the statement if you have set your printer to do auto-linefeeds on receipt of a carriage return.

5. Convert to double-density

This allows you to change a quad-density font into Epson or Shinwa double-density. This is usually only necessary if your printer cannot handle quad-density graphics (see Appendix 1).

Since the conversion combines adjacent pairs of dots in the horizontal direction, some loss of symmetry of characters is often inevitable. In addition, the Shinwa conversion leaves some

dot spaces in lines. These defects can be corrected by editing the affected characters as required.

6. Create a blank font

This should be used only if you wish to start from scratch and define a completely new font. It is, however, usually easier to modify an existing one, even if the style is quite different.

The option prompts you for the average width of each character (3-24 dots). In Epson quad-density graphics, 24 dots corresponds to pica (10 characters per inch or cpi) and 20 to elite (12 cpi). A skeleton quad-density font is then created with all character patterns cleared and their widths set to this average width. If you wish to create a double-density font, convert it using option 5.

7. Save the main font

This allows you to save the font.

8. Save the customized font editor

After customizing the font editor as described above, you can save it by selecting this option.

Hints on character design

When designing a new font, you first need to decide if it is to be fixed pitch or proportional. The latter is more readable but is rather harder to use if exact centring and tabulation is required. Normally fixed-pitch fonts are 10 or 12 characters per inch (24 or 20 dots wide respectively in Epson quad-density; 14 or 16 dots wide in Shinwa double-density). With a proportional font, determine the average width (which should not be greater than 24 dots) and make this the width of a space.

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. All lower-case letters such as "a" and "c" should be the same height. Remember that letters such as "y" have descenders and two or three rows at the bottom of the grid must be allowed for this. Note that in some fonts brackets etc can be one or two rows taller than the top of other characters.

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 four dots if emphasized mode is to be used, ie two 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". 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 usually rather 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 or try changing a font from fixed to proportional pitch.

APPENDIX 1. TECHNICAL INFORMATION

Printer compatibility

The bit-image graphics mode used should be the highest density available on the printer, where "density" means the number of dots per inch (dpi) which can be printed. The Epson RX-80 and compatibles can print in quadruple-density (240 dpi) and the Epson-type fonts supplied are designed for this mode. The Epson codes for quad-density graphics are ESC "Z" n1 n2. Check your printer manual to ensure this mode is available (some manuals express the density in number of dots per line - since a line is usually eight inches wide, 240 dpi corresponds to 1920 dots per line). If not, convert the fonts to Epson-type double-density (120 dpi, Epson codes ESC "L" n1 n2), using the font editor. Printers with only single-density (60 dpi, Epson codes ESC "K" n1 n2), or no bit-image graphics at all, are unsuitable for Qualitas. Some printers (eg Brother M1009) have very small print buffers which overflow several times during printing a line, causing loss of print speed. If this is a problem, convert the fonts to Epson double-density which will halve the amount of data being sent to the printer (at the cost of some loss of print quality).

Printers based on the Shinwa chassis (Cosmos CP80, Mannesmann Tally MT80, Shinwa CP80, Tatung TP80 etc) have a double-density mode giving 160 dots per inch. The font editor can convert Epson-type quad-density fonts to Shinwa-type double-density; a set of converted fonts is, however, supplied. Note that the pins are larger than those used by Epson printers. In the worst case, this could render some characters unreadable, eg in subscript mode.

As described above, NLQ printing requires two passes of the printhead with a linefeed of less than 1/72 inch between passes. Check your printer is capable of n/144 or n/216 inch linefeeds (Epson codes ESC "3" n). If not, NLQ printing will not be possible.

Although Qualitas is supplied set up for the above Epson codes, it can generally be customized to use other codes if necessary, as long as your printer has the requisite features.

The use of Qualitas with a 24-pin printer emulating a 9-pin one is not recommended as inferior print quality is likely to result.

Escape code lengths

Qualitas maintains a table of the lengths of ESC code sequences so it can recognize them in the stream of characters being sent to the printer. The table consists of the length for each code 0-127 which follows the ESC byte, eg the length for code 65 is three, because the sequence ESC "A" n is three bytes. It is supplied set up for standard Epson ESC/P codes, but can be altered using the customizer. If no sequence exists for a particular code the length should be set to 2. The lengths shown as 0 in the table denote

sequences of varying length, and cannot be redefined. The use of ESC sequences with different lengths to those defined in the table may lead to incorrect printing, even with Qualitas switched off.

Seven-bit and 8-bit modes

The Amstrad CPC computers have a 7-bit printer port which can only send codes 0-127 to the printer. This means that the eighth pin in bit-image modes cannot be used, leading to characters which are only 14 rows tall instead of 16. This deficiency can be overcome by fitting an 8-bit printer port, which is available at reasonable cost (contact us for further details). Qualitas can, however, be used in both 7-bit and 8-bit modes, selected by the customizer. In 7-bit mode, the following changes are made: bit 7 of all data sent to the printer is cleared; superscripts are moved down two rows; double-height characters have the top two rows of the lower half of the character transferred to the top half; and passes of the printhead are split where necessary to ensure that the codes for bit-image graphics do not exceed 127. If you subsequently purchase an 8-bit port, don't forget to recustomize Qualitas accordingly.

APPENDIX 2. EPSON CONTROL CODES USED BY QUALITAS

Mode	Codes for on	Codes for off
Condensed	15	18
Double strike (ie 3rd font)	27 71	27 72
Emphasized (bold)	27 69	27 70
Enlarged (double-width)	14	20
	27 87 1	27 87 0
	27 87 49	27 87 48
Horizontal tab	9	-
Horizontal tab set at n1...nN	27 68 n1...nN 0	-
Italics (ie 2nd font)	27 52	27 53
Linefeed of n/216 (n/144) inch	27 51 n	-
Subscript	27 83 1	27 84
	27 83 49	27 84
Superscript	27 83 0	27 84
	27 83 48	27 84
Underline	27 45 1	27 45 0
	27 45 49	27 45 48

Note: any of the alternative sets of codes listed can be used.

APPENDIX 3. 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 master disc using LOAD "qual64". Add a new line 1000 RUN "tasword" and save to your work disc with SAVE "qualitas".

If you have a CPC6128 or expanded CPC464/664, you can use the 128k loader. Load it with LOAD "qual128", add a new line 1000 RUN "tasword" and save to your work disc with SAVE "qualitas".

Load Tasword, return to the main menu, select option C (customize program), select the "define printer control characters" routine and ensure the printer control character codes for those Qualitas modes in Appendix 2 you wish to use are present and correct. Note these are standard Epson codes, and are the same as Tasword is set up for as supplied. 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 printer port software (if applicable), then the Qualitas loader. Note that with the QUAL64 loader, only one font can be loaded in the case of Amsword or Tasword 464, but up to three in the case of Tasword 464-D. After Qualitas is loaded, it will load Tasword automatically.

APPENDIX 4. TASWORD 6128

Installation. The special loader program should be loaded from the master disc using LOAD "qtw6128" and saved to your work disc with SAVE "qualitas".

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, select option C (customize program), select the "define printer control characters" routine and ensure the printer control character codes for those Qualitas modes in Appendix 2 you wish to use are present and correct. Note these are standard Epson codes, and are the same as Tasword is set up for as supplied. Return to the main menu and exit to BASIC. Add a line

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155 RUN "qualitas"
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RUN Tasword, 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 Qualitas loader. After loading the fonts it will re-enter Tasword.

The font(s) and the Qualitas code are stored on the RAM disc, decreasing the amount of free space for text to approximately 58k if one font is present and 5k less for each additional font installed. Do not load Qualitas with text present to avoid any possibility of text loss. You can return to BASIC and load another set of fonts by running the Qualitas loader again.

APPENDIX 5. PROTEXT

Disc Protex and rom Protex without Promerge Plus

Installation. If you have an unexpanded CPC464 or CPC664 the standard version of the loader program should be loaded from the master disc with LOAD "qual64". Add a new line 1000 JP if you have rom Protex. Save to your work disc with SAVE "qualitas".

If you have a CPC6128 (or a CPC464/664 with 64k extra ram) you can use the 128k loader. Load it with LOAD "qual128". Add a new line 1000 IP if you have rom Protex. Save to your work disc with SAVE "qualitas".

Loading procedure. Reset the computer first. If you are using disc Protex, load it and return to BASIC using the QUIT command. Now load and run your 8-bit printer port software (if applicable), and finally the Qualitas loader. After Qualitas is loaded, it will return to Protex automatically.

Rom Protex with Promerge Plus

Installation. In the case of an unexpanded CPC464/664, load the special 64k loader with LOAD "qpm64" and save with SAVE "qualitas". If you have a CPC6128 (or a CPC464/664 with 64k extra ram) there are two possibilities. If you want to use two-file editing but don't need the full 40k text space, load the QPM64 loader with LOAD "qpm64" and save with SAVE "qualitas".

If you don't need two-file editing but need the full 40k text space then load the special 128k loader with LOAD "qpm128" and save with SAVE "qualitas". Go into Protex, load the README file and then merge it with itself to create a text file which is at least 16k long. Then save it to the work disc with the filename "dummy".

Loading procedure. Reset the computer and run your 8-bit printer port software (if applicable), then the Qualitas loader, after which Protex will be entered automatically.

Restrictions. When using Promerge Plus, background printing is inoperative. Two-file editing commands must not be used if QPM128 is loaded as the Qualitas code is located in the second text file.

Hints and tips

If you need to send codes for line spacing or tab-setting given in Appendix 2, it is more convenient to use the >oc (output code) stored command rather than defining printer control characters.

Protex sends a reset code at the beginning of each document. If this is on the same line as the Qualitas switch-on code, eg if you have zero top margin, it will inhibit Qualitas being switched on.

If necessary, you can disable the reset code as follows. Run Protex, issue the command SETPRINT and select the "change control codes". Select the "@" character and just press ENTER when prompted for the "codes for on" and "codes for off".

You might also wish to define one of the spare printer control characters to give code 9 (in both "codes for on" and "codes for off") for use with Qualitas tabbing.

Go into the "save printer driver" option of SETPRINT and save this printer driver file with any convenient filename to your work disc. You will need to load it each time before using Qualitas with the command PRINTER <filename> (see Protex manual).

APPENDIX 6. MINI-OFFICE II

Installation. Qualitas can only be used with Mini-Office II on a CPC6128 or equivalent. Load the special loader from the Qualitas master disc with LOAD "qmo2", and save it to your work disc with SAVE "qualitas".

If you are using an 8-bit printer port, then ensure its software (if any) is in unused system ram. In the case of the KDS Electronics ports, change line 1 of the BASIC program to:

```
1 RESTORE 5: m=48768
```

Loading procedure. Reset the computer, load and run your 8-bit printer port software (if applicable), then the Qualitas loader. After Qualitas is loaded, the operating system is partially reset - this is quite normal and doesn't mean the computer has crashed! Now load Mini-Office II.

Hints and tips. When editing text in the word processor, an embedded command can be used to send the Epson printer control codes shown in Appendix 2. We recommend that where possible a separate line is used for this as the spaces Mini-Office inserts will otherwise become leading spaces. Since Mini-Office centres text, you need to allow for this when calculating the justification control. For example, the default characters/line setting is 72. This means to allow for centring on an 80-column printer Mini-Office will send four leading spaces. Hence to justify text in this case, you would use switch-on codes {L (L has the code 76).

If you require double-height or double-width characters use the Qualitas codes for them, not the Mini-Office options.

When printing, do not spool text as the multi-tasking capability of the computer is suspended while Qualitas is printing. Also, do not send printer control codes which have code 32 as the last code in a line, otherwise incorrect printing may result because Qualitas removes trailing spaces in a line in the case of Mini-Office.

There are no facilities in the database to send printer codes so, if this is necessary, either do it from BASIC after Qualitas is loaded, or use the word processor.

The label printer cannot be used with Qualitas - use the database or the word processor for labels.

APPENDIX 7. MASTERFILE III

Installation. Load the special loader with LOAD "qmf" and save to the work disc with SAVE "qualitas". Load Masterfile III and return to BASIC. Remove line 5 of the program and the statement MEMORY &2FFF in line 10. Save the BASIC to the work disc with SAVE "mf3" and then copy the machine code (see Masterfile manual).

Loading procedure. Reset the computer. Load and run your additional 64k software and/or your 8-bit printer port software (if applicable), and then the Qualitas loader. After Qualitas is loaded, Masterfile III is loaded automatically.

Hints and tips. Qualitas can be controlled using main menu [Q] to send the switch-on and switch-off codes, eg 123 125. If a forms depth n other than 66 (default) or 99 (infinite page) is being used, the codes for this (27 67 n on Epson printers) should be sent while Qualitas is switched off as this is a command to the printer and not Qualitas. One problem is that Masterfile III cannot send codes over 127 to the printer. If you wish to send codes 123 255 for example, you will need to exit to BASIC and do PRINT #8,CHR\$(123);CHR\$(255); then re-run Masterfile by doing GOTO 100.

There is much less space for the User BASIC code (about 4k instead of 10k) so you may get a "Memory full" message when loading if you have added a lot of key definitions. The only solution is to remove some of these and extraneous statements such as REM statements until loading is successful.

If your application gives tabular output, it is best to use a fixed-pitch font to simplify column tabulation.

APPENDIX 8. STAND-ALONE USAGE

Installation. Either the standard loader, filename QUAL64 or (in the case of the CPC6128 and expanded CPC464/664) the 128k loader, filename QUAL128, can be used. Load it from the Qualitas master disc with LOAD "qual64" or LOAD "qual128" and save to your work disc using SAVE "qualitas".

Loading procedure. Reset the computer and load and run your 8-bit printer port software (if applicable), then the Qualitas loader.

Hints and tips. After Qualitas is loaded, all output on stream #8 is diverted to Qualitas, and it can therefore be controlled by PRINT #8 statements either direct from the keyboard or as part of your BASIC programs. You must ensure that lines are no longer than the printer carriage width, as Qualitas cannot wrap text onto the next line. Justification is often undesirable in this case, and can as usual be switched off by setting the justification control to a greater number than the maximum column width. For example, to list a BASIC program, do WIDTH 80 first, then PRINT #8,"{" to switch Qualitas on, and finally LIST #8.

It is also possible to print an ASCII file direct from disc in a similar way, using a one-line program such as:

```
10 OPENIN "filename": WHILE NOT EOF: LINE INPUT #9,a$: PRINT #8,a$:  
WEND: CLOSEIN
```

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