

SLOGGER

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Printer Driver Generator User Guide

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<u>CONTENTS</u>	<u>PAGE</u>
1. INTRODUCTION	3
2. LOADING	
2.1 CASSETTE FILING SYSTEM	4
2.2 ROM FILING SYSTEM	4
2.2.1 ROM INSERTION	4
2.2.2 LOADING THE PROGRAM	4
3. PRINTER DRIVER OPTIONS	
3.1 PRINTER TYPE	5
3.1.1 PRINTER BAUD RATE	5
3.2 PRINTER INITIALISATION CODES	5
3.3 PRINT RUN TERMINATION CODES	5
3.4 METHOD OF UNDERSCORING	5
3.4.1 UNDERSCORE CHARACTER	6
3.5 METHOD OF WIDE PRINTING	6
3.6 METHOD OF BOLD PRINTING	6
3.6.1 NUMBER OF STRIKES FOR BOLDFACE	6
3.7 PAGE LENGTH	6
3.8 CARRIAGE RETURN AND LINEFEED CODES	6
3.9 RETURN OF CARRIAGE CODES	7
3.10 BACKSPACE CODES	7
3.11 USER PRESET CODES	7
4. PROGRAM EXECUTION	8
5. SUMMARY OF OPTIONS	11
6. EPSON CONTROL CODES SUMMARY	12
7. GLOSSARY	15

1. INTRODUCTION

What is a printer driver generator?

A printer driver generator (PDC) is a utility program which will allow a word processor to take advantage of the many sophisticated features found on modern printers. This printer driver generator is intended for use with the STARWORD word processor (a SLOGGER product). The PDC will run interactively with the user to create a permanent file containing data that STARWORD will use during the printing phase in order to reproduce such effects as underlining text (underscoring), printing large characters, small characters, bold characters, etc etc.

2. LOADING

If your printer driver generator is a cassette tape, then you will need to read section 2.1 for loading instructions.

If your printer driver is on an EPROM, then you should consult section 2.2 to find out how to use the program.

2.1 CASSETTE FILING SYSTEM

1. Insert the tape in the cassette recorder and rewind to the beginning. Make sure that side A of the tape is uppermost.
2. Type CHAIN"" or CHAIN"DRIVER" followed by <RETURN>.
3. Press the PLAY button on the tape recorder and the program will automatically load and run.

2.2 ROM FILING SYSTEM

2.2.1 ROM INSERTION

PLEASE READ THESE INSTRUCTIONS CAREFULLY

1. ENSURE THAT THE POWER IS OFF
2. The Printer Driver Generator EPROM may be inserted into any of the sockets of your ROM extension unit.
3. Before you can insert the EPROM chip, you must first ensure the correct orientation as there is only one way that the chip MUST be inserted but there are two ways that the chip CAN be inserted. One way is correct, the other will destroy the chip.
4. Examine the chip. One end has a notch in it. Locate this end and hold the chip by the ends, between finger and thumb, so that the notch is on the end facing away from you.
5. Now, face your computer. Line up the pins on the bottom of the chip with the holes in the socket on your ROM extension unit.
6. Push the chip down into the socket with a firm and even pressure, but try not to force the chip in.
7. Once you think the chip is in the socket, check all around the chip to make sure that all the pins have entered their corresponding sockets, and that none are bent outward or inward.
8. Finally, check that the notch is on the end of the chip at the back end of the computer. If this is not so, then lever first one end then the other end of the chip out of the socket with a small screwdriver, turn it around and replace it the correct way, then you can turn the power on.

2.2.2 LOADING THE PROGRAM

1. Type *ROM on the computer to select the ROM Filing System (RFS).
2. Type CHAIN"" or CHAIN"DRIVER" and press <RETURN>. The program will automatically load and run.

3. PRINTER DRIVER OPTIONS

3.1 PRINTER TYPE

This option allows you to specify whether your printer has a serial or parallel interface.

If you are not sure what type of printer you have, then consult the handbook that is supplied with the printer, or look at the cable that connects the printer to the computer; if the cable is made up of many small wires side-by-side and looks like a piece of ribbon (hence the name 'Ribbon cable') then your printer is of the parallel type. If the cable is cylindrical, like a piece of electrical flex, then the printer is of the serial type.

3.1.1 PRINTER BAUD RATE

If your printer has a serial interface then you need to specify how fast data should be sent to the printer. That is, you must select the transmit baud rate to the printer (this is usually 1200 baud). Your printer manual should give you the range of baud rates that your printer can be set to operate.

3.2 PRINTER INITIALISATION CODES

These are the codes to be sent to the printer to set it up for the whole of the print, such as condensed characters, selection of the character set, or the line spacing of the print. These can be found in the printer manual and are usually summarised in the appendices.

3.3 PRINT RUN TERMINATION CODES

This is a series of control codes sent to the printer at the end of printing each copy of the text in order to leave it in a known idle state.

Most printers which are of a recent design tend to have buffers (their own memory) to hold text to be printed so that the computer can send this text at high speed whilst the printer is still printing at a relatively low speed. In practice, what happens is that a line of text is not printed until a 'carriage return' has been sent to the printer. On the last line of text, therefore, if you neglected to put a final 'carriage return' in the text then normally this would not be printed. STARWORD overcomes this by actually detecting the lack of a carriage return on the last line and will send this code to the printer.

For printers with an internal buffer this option can be used to ensure that the contents of any internal printer buffer are printed.

3.4 METHOD OF UNDERSCORING

If your printer supports underscore control codes, then you may use these codes to underscore the text. The underscore codes are found in the control codes appendix of the printer manual and should be typed in at the appropriate prompt.

If your printer has no such codes, do not despair! Because STARWORD can print underscored text by either reprinting the line with underscore characters or backspacing after each character is printed and underscoring it.

3.4.1 UNDERSCORE CHARACTER

If your printer does not use control codes to print underscore then you will need to specify the character that the printer will print to underline the text. This character looks like this "_" and has a value of &5F in hexadecimal or 95 in decimal.

3.5 METHOD OF WIDE PRINTING

If your printer supports wide printing by control code, you can output characters double the width of normal. The control codes for the double width printing can be found in the printer manual.

3.6 METHOD OF BOLD PRINTING

If your printer supports the control code for bold printing then you can use these control codes to obtain boldface print. However, if your printer does not support these codes, then STARWORD can produce 'artificial' boldface by printing the current line twice, or by backspacing after each character and reprinting it.

3.6.1 NUMBER OF STRIKES PER BOLDFACE

If your printer does not use control codes to print bold and you must achieve this by reprinting or backspacing then you will need to specify the number of times the printer prints each character to obtain the hold type.

3.7 PAGE LENGTH

The page length sets the number of lines of text which can be printed on a page. That is, from the top to the bottom edge of the paper.

When a page is only partially filled with text, STARWORD will output linefeeds until the section is up to the page length before printing out the next page.

3.8 CARRIAGE RETURN AND LINE FEED CODES

When some printers reach the end of a line, they need the computer to send them both a carriage return AND a linefeed to proceed to the next line. Other printers need only a carriage return character (13) to proceed. This option allows you to specify what type of printer you have.

3.9 RETURN OF CARRIAGE CODES

This series of codes is only used by STARWORD if your printer does not support bold or underscored printing, and to achieve these features, STARWORD must reprint the current line of text appropriately.

3.10 BACKSPACE CODES

This is the series of codes sent to the printer in order to backspace the print head to overprint the last character printed.

3.11 USER PRESET CODES

These codes are left to the user to define, and are completely optional.

Four user selectable print control codes are provided, each of which allows you to select any of the remaining standard print features, such as superscript or subscript printing, or indeed can be used to merge several features together into the one print control code.

4. PROGRAM EXECUTION

Overview

When the program has loaded, the title screen will appear, along with the first option to select. This option should ask for the type of printer you have. Type the letter corresponding to your choice (No need to press <RETURN>). If at any time you wish to alter an option, you can step back one option at a time by pressing the <ESCAPE> key.

Printer Type

The next option is for the baud rate of the printer that you have provided that the printer is serial. If you are not sure what the rate for your printer is, then consult the manual that was supplied with it. The usual rate is 1200 baud, but there are a wide range of rates so that you can cater for your particular machine. To select a particular rate, type the corresponding letter without <RETURN>.

Printer Initialisation

After the baud rate option, you will be asked if there are any codes that your printer may need to set it up for the whole of the print, for example, the character set (font) or the line spacing. If you do not want any codes, then press option **B** at the prompt. Otherwise press option **A** and you will be asked to type in the number of codes and the codes themselves, each followed by <RETURN>.

Terminate Printing

Next is the option for codes to terminate printing, that is, those codes that you wish to 'tack on' to the end of a document when it is printed. The user of these codes is explained in section 3.3 Use option **A** to select these codes, and type these in the same way that you typed the codes to start the print (i.e. followed by <RETURN>).

Underscoring Text

If, in your document, there are certain parts that you wish to be underscored (underlined) then you will need to decide how your printer goes about this. Some printers need special codes to tell them to underline the text until otherwise informed. Other printers have no such control codes, and so they must first print the text to be underlines, then reprint a row of dashes under the text.

A third way of underlining is to print the text to be underlined one character at a time, then to backspace after each character and print a dash under the character. You must decide which of these three methods of underlining you want to employ, or whether you want to underline at all.

If you choose the control code method of underscoring, you will have to specify the codes that your printer needs to let it know when you want to start and stop underscoring. Option **A** will allow you to enter the codes that your printer needs. Your printer manual should tell you these codes, but if you have trouble, then you can use one of the other two methods.

The other two methods of underscoring will ask you to specify the dash character that the printer must print under the text to underscore it. This is usually number 95 in decimal, or 5F in hex, and looks something like this "_". When the computer asks you for the code, type it in as a two digit number, followed by <RETURN>.

Printing Wide Text

The next option is one which will ask you if your printer supports control codes for wide printing. Unfortunately, STARWORD cannot artificially produce wide characters as it can for underscore or bold print, so if your computer has no such codes, you should choose to ignore them by using option **B**.

If you choose to use control codes, then you will be asked to specify the number of codes, and the codes themselves, as in the underscoring option.

Printing Bold Text

If, in your document, you wish to have bold characters to emphasise the print, you may do so in one of three ways, like the methods for underscoring; control codes, backspace and reprint, or reprint the whole line.

Your printer manual should tell you the control codes for bold print, although these are normally labelled as control codes for EMPHASISED print. Emphasised and bold print is the same thing, so you can use the control codes for emphasised print in this option. You will be asked to specify the codes for this in the same way as for wide and underscored print.

If, on the other hand, you want to print in boldface by reprinting the line or backspacing, then you will be asked how many times you want the printer to print the bold characters. Just type in the number of strikes, followed by <RETURN>. The maximum allowed is five strikes, because any more may wear holes in the paper!

Page Length

This option asks you for the length of a single page in lines. The default page length is sixty-six lines, and so if you want sixty-six line pages, just press <RETURN>. Otherwise type in the number of lines per page followed by <RETURN>.

Return of Carriage and Line feed

When some printers reach the end of a line, they need to be told both to move the print head to the start of the line (carriage return) and to move the paper up one line (line feed). On other printers returning the carriage to the start of the line causes the paper to move to the start of the next line, in other words the printer executes a line feed at the same time.

You must specify the sequence of codes to send to the printer at the end of each line so that it will both advance the paper and return to

the start of the line, by selecting either **A** or **B**. You can also choose option **C** which enables you to enter any different carriage return codes, bearing in mind that options **A** and **B** will set these codes to 13 for a carriage return and 10 for a line feed.

Return of Carriage only

This option allows you to specify the series of control codes required to be sent to the printer to cause the carriage to return to the start of the current print line. This facility is only used by STARWORD when you choose to print bold or underscoring by reprinting the line.

If you do not require these codes, select option **B**. Otherwise, type **A** then the number of codes followed by <RETURN> and then the codes themselves, each followed by <RETURN>.

Backspacing the Printer

Most modern printers support the ability to move the print head back by one character and thus allow over-printing of that character. This feature is commonly known as backspacing.

To make this feature available to STARWORD just type in a sequence of up to five characters, followed by <RETURN>.

User Defined Codes

The final option is one left entirely to your artistic talents! You have the option of sending codes to the printer which have been specified by you. These codes are optional, but are useful for providing effects that are special to your printer.

The codes come in four groups so that you can have a variety of effects without changing the printer driver. You can define them so that, when asked, STARWORD will output the string of preset characters to the printer, to produce your special effects. To set up a user preset code, type the letter corresponding to the group of your choice, then the number of codes that make up the preset group, followed by <RETURN>, and the codes themselves each followed by a <RETURN>.

5. SUMMARY OF OPTIONS

<u>Option</u>	<u>Page</u>
PRINTER TYPE	5
PRINTER BAUD RATE	5
PRINTER INITIALISE CODES	5
PRINT RUN TERMINATION CODES	5
METHOD OF UNDERSCORING	5
UNDERSCORE CHARACTER	6
METHOD OF WIDE PRINTING	6
METHOD OF BOLD PRINTING	6
NUMBER OF STRIKES IN BOLDFACE	6
PAGE LENGTH	6
CARRIAGE RETURN AND LINEFEED CODES .	6
RETURN OF CARRIAGE CODES	7
BACKSPACE CODES	7
USER PRESET CODES	7

6. EPSON CONTROL CODE SUMMARY

KEY:

F These control codes work on FX printers
M These control codes work on MX printers
R These control codes work on RX printers
ALL These control codes work on all Epson printers

PRINT MODE

ASCII	DEC	MODEL	SUMMARY
SO	14	ALL	Sets enlarged characters (only for the current line).
ESC SO	27,14	F R	Sets enlarged characters (until cancelled)
ESC W n	27,87,n	ALL	Sets (with n=1 or 49) or cancels (with n=0 or 48) enlarged characters
DC4	20	ALL	Cancels enlarged characters
SI	15	ALL	Sets condensed characters (only for current line)
ESC SI	27,15	F R	Sets condensed characters (until cancelled)
DC2	18	ALL	Cancels condensed characters
ESC !	27,33	F	Selects print style mode
ESC - n	27,45,n	ALL	Selects (with n=1 or 49) or cancels (with n=0 or 48) underlining
ESC E	27,69	ALL	Sets emphasised characters
ESC F	27,70	ALL	Cancels emphasised characters
ESC G	27,71	ALL	Sets double strike characters
ESC H	27,72	ALL	Cancels double strike characters
ESC M	27,77	F R	Selects elite style characters
ESC P	27,80	F R	Selects normal (pica) style characters
ESC S 0	27,83,0	ALL	Sets superscript characters
ESC S 1	27,83,1	ALL	Sets subscript characters
ESC T	27,84	ALL	Cancels ESC S mode characters
ESC p n	27,112,n	F	Sets (with n=1 or 49) or resets (with n=0 or 48) proportionally space characters

LINE SPACING

ESC 0	27,48	ALL	Sets spacing to 1/8 inch
ESC 1	27,49	ALL	Sets spacing to 7/72 inch
ESC 2	27,50	ALL	Sets spacing to 1/6 inch
ESC 3 n	27,51,n	ALL	Sets spacing to n/216 inch, where the unit n= 1/3 dot (n= 0-255 incl.)
ESC A n	27,65,n	ALL	Sets spacing to n/72 inch (n= 0-85 incl.)

PAPER FEED EXECUTION

ASCII	DEC	MODEL	SUMMARY
LF	10	ALL	Single line feed
FF	12	ALL	Feeds to beginning of next form
CR	13	ALL	Carriage return
ESC J n	27,74,n	ALL	Executes a n/216 inch paper feed (n=0-255 incl.)
ESC N n	27,78,n	ALL	Sets the number of lines to skip over the perforation to n (n= 1-127 incl.)
ESC O	27,79	ALL	Cancels skip over perforations set by ESC N
ESC j n	27,106,n	F	Reverse feed of n/216 inch

FORMAT CONTROL

BS	8	ALL	Backspace - prints and backs by 1 character
HT	9 or 137	ALL	TABs horizontally to next TAB position
VT	11	ALL	Line feeds to next vertical TAB position
ESC / n	27,47,n	F	Selects the vertical format unit for vertical TABs
ESC B ...	27,66...	ALL	Sets the vertical TAB positions
ESC C n	27,67,n	ALL	Sets form length to n lines
ESC C 0 n	27,67,0,n	ALL	Sets form length of n inches
ESC D ...	27,68 ...	F M	Sets the horizontal TAB positions
ESC Q n	27,81,n	ALL	Sets column length (right margin)
ESC b ...	27,98...	F	Sets VFU positions
ESC e ...	27,101...	R	Sets horizontal/vertical TAB unit
ESC f ...	27,102...	R	Sets horizontal/vertical skip position
ESC l n	27,108,n	R	Sets the left margin

INPUT DATA CONTROL

CAN	24	F	Cancels all data already input on that line
DC1	17	F	This enables the printer to receive data
DC3	18	F	This disables the printer
DEL	127	ALL	The last character is deleted
ESC 6	27,54	F	Expands the printable code area
ESC 7	27,55	F	Cancels ESC 6
ESC =	27,61	F	Sets the MSB of 8-bit data to 0
ESC >	27,62	F	Sets the MSB of 8-bit data to 1
ESC	27,124	F	Cancels ESC = and ESC >
ESC I n	27,73,n	F	Selects printable/control codes

CHARACTER SET

ASCII	DEC	MODEL	SUMMARY
ESC 4	27,52	F R	Selects alternate mode/italic characters
ESC 5	27,53	F R	Deselects alternate mode/italic characters
ESC &	27,38	F	Define characters
ESC % ...	27,37...	F	Selects character set
ESC : ...	27,58...	F	Copies ROM character set to download set
ESC R n	27,82,n	ALL	Selects international character set
ESC m n	27,109,n	R	Selects special character generator

MISCELLANEOUS

BEL	7	ALL	Sounds buzzer
ESC 8	27,56	ALL	Disables paper-end detector
ESC 9	27,57	ALL	Enables paper-end detector
ESC <	27,60	F R	Prints from left
ESC @	27,64	ALL	Initialises printer
ESC U n	27,85,n	ALL	Sets unidirectional printing with n=1 or 49
			Sets bi-directional printing with n=0 or 48
ESC i n	27,105,n	F	Sets or cancels incremental mode
ESC s n	27,115,n	F R	Selects print speed

BIT IMAGE GRAPHICS

ESC *	... 27,42...	F R	Sets 8-bit graphic mode
ESC ^	... 27,94...	F	Sets 9-bit graphic mode
ESC K	... 27,75...	ALL	Normal density, 8-bit
ESC L	... 27,76...	ALL	Dual density, 8-bit
ESC Y	... 27,89...	F R	Double speed, dual density 8-bit
ESC Z	... 27,90...	F R	Quad density, 8-bit

7. GLOSSARY OF PRINTER TERMS

Baud rate	- the speed at which data is passed to the serial interface in bits per second. To find the speed in characters per second, divide the baud rate by 8.
Bidirectional	- a printer whose print head scans alternately from left to right, then right to left as it prints each line, thus saving time when the head would otherwise move back from the end of the paper after each line.
Bit	- the most basis item of data in a computer which can be either '0' or a '1'. Collectively they form the data and characters that computers deal with.
Boldface	- a term used to describe heavy print which has been printed twice, the second time slightly offset from the first to give a heavier print. Not to be confused with double strike.
Buffer	- a term used to describe the intermediate data store that modern printers often have. Text is temporarily stored in this memory so that the computer can go on and do other things while the printer finishes printing. It normally holds 1000-250000 characters.
Byte	- a collection of 8 bits which form a number which is between 0 and 255. The computer recognises these items of data as the characters that you type at the keyboard.
Condensed print	- print which has more closely spaced and narrower characters than standard print.
Double strike	- a term used to describe heavy print, in this case printed twice in the same place, giving a less heavy print than boldface.
Elite	- not a game (!) but the term used to describe the character set that offers more than about 100 characters to one line of text.
Font	- the general name given to a character set.
Form	- another name for a page.
Logic Seeking	- a printer whose printing head will only move to where text is to be put. Until fairly recently, the print head of most printers went all the way across the paper even if there was only one word at the start of the line.
Null	- a character which does nothing to the printer.
Parallel interface	- an interface on a printer which can accept all of the bits in a byte at once. Faster than a

serial interface, but more costly and less easy to produce.

- | | |
|------------------|--|
| Pica | - the term used to describe printers which have less than 100 character to the line. |
| Print head | - the carriage that travels across the paper and prints the characters on the paper. |
| Serial interface | - an interface on a printer which can only accept data one bit at a time. Cheaper and less sophisticated than a parallel one, but also slower. |
| Unidirectional | - a printer whose print head, when printing, can only move in one direction (usually left to right) |
| Wide print | - print that is more widely spaced and double the width of standard print. |