

Printer

Description

The unit described in this section is an electro-mechanical line printer using engraved type. It has 132 printing positions. Each printing position is capable of printing 48 different symbols, including numeric, alphabetic and special symbols, exclusive of blank space. This printer operates at 600 lines per minute.

Each line of printing of up to 132 characters is considered to be a block of information. In the single mode of operation, each WRITE instruction causes the printer to print one line. Several lines may be printed with one WRITE instruction in the multiple mode.

Other than loading the carriage with the proper forms and control tape, no operator set-up is required. (The operation of the automatic carriage is described in Section 2). Full control over the printer operation resides in the stored program, thus providing the greatest flexibility and simplicity of operation.

The printer contains a buffer for ~~storing~~ the contents of one complete line of printing. The information to be printed is coded in a 6 bit code. Checking of the printing is done automatically.

The printer will be connected to the exchange through a byte converter which will accept 8 bit bytes from the exchange and furnish 6 bit bytes for use by the Printer Control Unit.

Carriage Control

The printer carriage is controlled by means of a punched paper tape. The line and function selection may be accomplished either with the computer or by punching in the paper tape.

The carriage contains a loop of control tape corresponding in length to the length of the form being used for printing. The tape contains two channels of pre-punched holes which are sensed by two brushes. One channel governs the position of the LAST LINE and has only one hole positioned at the last printing line of the form. The second channel contains up to 7 punches positioned at the FIRST LINE of a block.

In addition to the tape mentioned above a switch has been provided to give the following effects:

Switch Setting

S1	Ignore tape control and single space.
S2	Ignore tape control and double space.
S3	Ignore tape control and triple space.
P1	Carriage control information contained as the first byte of current line of print.
P2	Carriage control information contained as the first byte of previous line of print.

To set up the carriage for each line of printing, an 6-bit Line Select Byte (LSB) precedes the data to be printed. If the BCD character contained in the LSB is (11 0001) through G (11 0111) the carriage will skip one through seven lines, as specified, prior to printing the specified line.

If the BCD character contained in the LSB is J (10 0001) through P (10 0111) the carriage will skip to the corresponding hole punched in the 2nd channel of the tape prior to printing the specified line. This form of carriage control serves when the selector switch is set to P1 or P2. When the switch is set to S1, S2, S3, the LSB is ignored and spacing is controlled automatically with overflow to the FIRST LINE punch in channel 2 produced by the LAST LINE punch in channel 1.

Note: An arbitrary eject can be caused by a skip to FIRST LINE punch coded as a J in the LSB, when the selector is on P1 or P2.

Keys

POWER ON
POWER OFF
READY

The printer is placed in a READY status if the power is on, paper is loaded, and the carriage is ready.

STOP
SIGNAL

The following keys are mounted on the carriage.

STOP

Any spacing or skipping is stopped immediately, and the carriage and printer are placed in a Not Ready operation. Its purpose is to stop accidental skipping when a proper control tape is not in place.

RESTORE

The carriage is advanced to the FIRST LINE punch in channel 2 and the punch control counter is set to 1.

SPACE

The carriage is advanced one line.

CLUTCH

This switch permits the carriage to be moved independently of the paper.

Lights

POWER ON

READY

OUT OF MATERIAL

RESERVED

WRITE CHECK

Control Instructions

Code

- 0 RESERVED LIGHT off
- 1 RESERVED LIGHT on
- 2 WRITE CHECK LIGHT on

Line Select Byte

The LSB is a 6-bit byte which precedes the line of information to be printed. With the selector switch set to P1 the LSB is the first byte of the current line of printing. With the selector switch set to P2 the LSB is the first byte of the preceding line of printing. With the switch set to P2 it is necessary to initiate a pre-printing byte to set the carriage for the first line. This may be accomplished by sending a word of blanks with an LSB specifying the decimal initial condition before sending the first printing line.

<u>Code</u>	<u>Function</u>
A = (11 0001)	Skip one line prior to printing.
B = (11 0010)	Skip two lines prior to printing.
C = (11 0011)	Skip three lines prior to printing.
D = (11 0100)	Skip four lines prior to printing.
E = (11 0101)	Skip five lines prior to printing.
F = (11 0110)	Skip six lines prior to printing.
G = (11 0111)	Skip seven lines prior to printing.
J = (10 0001)	Skip to 1st punch, channel 2, prior to printing.
K = (10 0010)	Skip to 2nd punch, channel 2, prior to printing.
L = (10 0011)	Skip to 3rd punch, channel 2, prior to printing.
M = (10 0100)	Skip to 4th punch, channel 2, prior to printing.
N = (10 0101)	Skip to 5th punch, channel 2, prior to printing.
O = (10 0110)	Skip to 6th punch, channel 2, prior to printing.
P = (10 0111)	Skip to 7th punch, channel 2, prior to printing.

If the Selector Switch is set to S1, S2, or S3, the LSB should be set to all zeros.

Out of Material

When the last sheet of paper has been reached, as determined by the form stop lever, the printer will not continue to print beyond the last line of the current form.

The WRITE instruction which would have caused spacing or skipping to the next form is not executed; instead the instruction is terminated with an END EXCEPTION indication. The printer then becomes NOT READY.

Operating Procedure

- (a) Turn on power
- (b) Load carriage with proper forms
- (c) Check if carriage contains proper control tape. In order to align the control tape with the form, proceed as follows:
 - Disengage clutch and advance paper to the first line of the form.
 - Press RESTORE key
 - Engage clutch.
 - Press Ready key.

These options are common to all 5 options.

	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100
(none)	00		1	2	3	4	5	6	7	8	9	0	* *
(0)	01	*	*	S	T	U	V	W	X	Y	Z	*	* *
(11)	10	*	J	K	L	M	N	O	P	Q	R	*	* *
(11)	11	*	A	B	C	D	E	F	G	H	I	*	* *

* See Special Character Sets below.

Special Character Options. A - G

Zone	12	12	12	12	11	11	11	11	0	0	0	none	none	none
Digit	none	0	8-3	8-4	none	0	8-3	8-4	8-3	8-4	1	8-3	8-4	none
A	&	&	.	H	-	-	\$	*	.	%	/	#	@	blk
B	/	&	.	H	-	-	\$	*	.	%	&	#	@	blk
C	&	&	.	H	-	-	\$	*	.	%	0	#	@	blk
D	.	&	.	H	-	-	\$	*	.	%	/	#	@	blk
E														
F	+	&	.)	-	-	\$	*	.	(/	#	-	blk
G	+	&	.)	-	-	\$	*	.	%	/	#	-	blk

(This code not used).